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EDITORS:

John R. Lord, M.B. Lewis C. Bruce, M.D.
Thomas Drapes, M.B.

ASSISTANT EDITORS:

Henry Devine, M.D. G. Douglas McRae, M.D.



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French.

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Belgian.

Bulletin de la Société de Médecine Mentale de Belgique.

German.

Allgemeine Zeitschrift für Psychiatrie; Archiv für Psychiatrie und Nervenkrankheiten; Centralblatt für Anthropologie; Der Irrenfreund; Jahrbücher für Psychiatrie; Kraepelin's Psychologische Arbeiten; Monatsschrift für Psychiatrie und Neurologie; Neurologisches Centralblatt; Philosophische Studien; Psychiatrische Wochenschrift; Zeitschrift für Psychologie.

Italian.

Annali di Freniatria; Annali di Nevrologia; Archivio di Psichiatria; Il Manicomio Moderno; La Psichiatria; Rivista di Patologia nervosa e mentale; Rivista Sperimentale di Freniatria; Rivista Neuropatologia Psichiatria; Rivista di Psicologia.

Russian.

Archiv Psychiatrii, Nevrologuii, i Soudebnoi Psychopatologuii; Obozrenie Psychiatrii, Nevrologuii, i Experimentalnoi Psychologuii; Voprosi Nervno-psychitscheckoi Medizini; Voprosi filosofii i psychologuii.

Books and Pamphlets Received.

Annual Report of the Inspector General, Victoria, 1914; Mind; Asylum News; Caledonian Medical Journal; The Therapeutic Gazette; Archives of Ophthalmology; Archivio di Antropologia Criminale Psichiatria; L'Anomalo; An Introduction to Social Psychology, *William McDougall*. The following by *P. C. Knapp*: Treatment of Cases of Mental Disorder in General Hospitals; Pulmonary Complications of Apoplexy; Two Cases of Removal of Extra-dural Tumour of the Spinal Cord; A Case of Retro-anterograde Amnesia following Gas-poisoning; Criminal Responsibility.

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" In adopting our title of the *Journal of Mental Science*, published by authority of the Medico-Psychological Association, we profess that, we cultivate in our pages mental science of a particular kind, namely, such mental science as appertains to medical men who are engaged in the treatment of the insane. But it has been objected that the term mental science is inapplicable, and that the term mental physiology or mental pathology, or psychology, or psychiatry (a term much affected by our German brethren), would have been more correct and appropriate; and that, moreover, we do not deal in mental science, which is properly the sphere of the aspiring metaphysical intellect. If mental science is strictly synonymous with metaphysics, these objections are certainly valid; for although we do not eschew metaphysical discussion, the aim of this JOURNAL is certainly bent upon more attainable objects than the pursuit of those recondite inquiries which have occupied the most ambitious intellects from the time of Plato to the present, with so much labour and so little result. But while we admit that metaphysics may be called one department of mental science, we maintain that mental physiology and mental pathology are also mental science under a different aspect. While metaphysics may be called speculative mental science, mental physiology and pathology, with their vast range of inquiry into insanity, education, crime, and all things which tend to preserve mental health, or to produce mental disease, are not less questions of mental science in its practical, that is in its sociological point of view. If it were not unjust to high mathematics to compare it in any way with abstruse metaphysics, it would illustrate our meaning to say that our practical mental science would fairly bear the same relation to the mental science of the metaphysicians as applied mathematics bears to the pure science. In both instances the aim of the pure science is the attainment of abstract truth; its utility, however, frequently going no further than to serve as a gymnasium for the intellect. In both instances the mixed science aims at, and, to a certain extent, attains immediate practical results of the greatest utility to the welfare of mankind; we therefore maintain that our JOURNAL is not inaptly called the *Journal of Mental Science*, although the science may only attempt to deal with sociological and medical inquiries, relating either to the preservation of the health of the mind or to the amelioration or cure of its diseases; and although not soaring to the height of abstruse metaphysics, we only aim at such metaphysical knowledge as may be available to our purposes, as the mechanician uses the formularies of mathematics. This is our view of the kind of mental science which physicians engaged in the grave responsibility of caring for the mental health of their fellow-men may, in all modesty, pretend to cultivate; and while we cannot doubt that all additions to our certain knowledge in the speculative department of the science will be great gain, the necessities of duty and of danger must ever compel us to pursue that knowledge which is to be obtained in the practical departments of science with the earnestness of real workmen. The captain of a ship would be none the worse for being well acquainted with the higher branches of astronomical science, but it is the practical part of that science as it is applicable to navigation which he is compelled to study."—Sir J. C. Bucknill, M.D., F.R.S.

THE JOURNAL OF MENTAL SCIENCE

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of Great Britain and Ireland.*]

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Part I.—Original Articles.

ON CAUSATION.

Through the kindness of Dr. Mercier we have been favoured with an advanced copy of the first instalment of a new work recently completed by him on the subject of Causation, with special reference to causes of death and causes of insanity. Owing to conditions now existing in consequence of the war, with, as a result, an extreme scarcity of suitable literary material for publication, as explained in the October number of the Journal, the Editors have had to face quite unprecedented difficulties; and they wish here to express their acknowledgments to Dr. Mercier for so generously coming to their aid in what may almost be termed a crisis in the history of the Journal. The second (and final) instalment of Dr. Mercier's book will appear in the April number.

UNIVERSITY OF
CALIFORNIA

CAUSATION

WITH

A CHAPTER ON BELIEF

BY

CHARLES A. MERCIER, M.D., F.R.C.P., F.R.C.S.

AUTHOR OF

'CRIMINAL RESPONSIBILITY'; 'PSYCHOLOGY, NORMAL AND MORBID';
'A NEW LOGIC'; 'CONDUCT AND ITS DISORDERS'; 'A TEXT-BOOK
OF INSANITY'; 'CRIME AND INSANITY'; 'ASTROLOGY
IN MEDICINE'; ETC., ETC.

Had I not continually exercised my judgement, the greater part of the books on these subjects would have turned my brain. This effect they have certainly had upon many who have not used the same precaution. I know the advantage which I might derive from perplexing the understanding by recurring to abstruse reasoning and logical quibbles. But I waive it all. I shall speak nothing but common sense, and what may be understood by anyone, however slender his acquirements.

—*Horne Tooke.*

I myself frequently meditate by myself long and intently; but in vain; unless I find an antagonist, I have no hope of success.—*Scaliger.*

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CONTENTS.

CHAPTER I.

SOME THEORIES OF CAUSATION. HUME, MILL, Mr. WELTON, PROFESSOR
PEARSON, MR. BERTRAND RUSSELL, DR. McTAGGART.

CHAPTER II.

EFFECT, REASON, RESULT, CAUSE.

CHAPTER III.

CONDITION.

CHAPTER IV.

CAUSATION.

CHAPTER V.

SUBSIDIARY PROBLEMS.

Plurality of Causes.

Regression of Causes and Progression of Effects.

Radification of Causes and Ramification of Effects.

Co-operation of Causes.

The Law of Causation.

The Uniformity of Nature.

CHAPTER VI.

METHODS OF ASCERTAINING CAUSES.

CHAPTER VII.

ERRORS IN ATTRIBUTING CAUSATION.

CHAPTER VIII.

CAUSES OF DEATH. CAUSES OF INSANITY.

CHAPTER IX.

ON BELIEF.

PREFACE.

EXASPERATED by the fatuity of an expert in heraldry whom he was cross-examining, Sir William Harcourt at length exclaimed : 'Why, the silly man does not understand even his own silly business !' The reader of a book on orthodox Logic is constantly tempted to make the same comment. Every book on Inductive Logic contains a chapter in which an attempt is made to investigate the nature of Causation, to define it, and to explain how causes are ascertained and assigned ; but why Causation should be considered subject-matter of Logic, any more than rotation or imitation, is hard to understand. The proper task of Logic is to describe and explain the principles and methods of reasoning, and causation is not a principle or method of reasoning, nor is the definition of causation or the ascertainment of causation a principle or method of reasoning. These are applications of reasoning. They are examples of reasoning. The results are arrived at by methods of reasoning, but they are not themselves methods or principles of reasoning, and are, therefore, no part of Logic. Mill says, and all subsequent writers have followed him, that causation lies at the very root of Induction. It does nothing of the sort. It is one of very many relations that may be discovered by Induction, but it is no more the basis of Induction than rotation or imitation is the basis of Induction.

However, logicians have appropriated to themselves the examination of causation, and it is not surprising, therefore, that its true nature has never been discovered, and that the subject is entangled in confusion and contradiction ; for it is thus that logicians leave the subjects they investigate. Mill is the model and great exemplar, as well as the leader of latter-day logicians, and though it may almost be said that men of all sorts take a pride to gird at him, yet it may also be said that he is not only confused and muddled in himself, but the cause of confusion and muddle that are in other men. He enumerates five Methods of Experimental Inquiry, and he calls them four, and in seventy years not one of his commentators has discovered the inaccuracy ; some of his most important terms, such as effect and condition, he never defines at all ; others,

351354

such as cause, causation, and conditionality, he defines over and over again in senses that are different, incongruous, or inconsistent ; his Canons for discovering causes are cumbrous, uncouth, and clumsy in expression, and in meaning are absurd. They never have been used, and never could be used. It is time, therefore, to take the matter out of the hands of logicians, and investigate it by the light of common sense.

Everyone has an approximate notion, good enough for most working purposes, of what is meant by causation, and by cause and effect, but no one has been able to put that notion into a verbal expression that will stand criticism, and some of the attempts to do so have resulted in expressions that are preposterous beyond belief, as will appear when they are examined. It may seem that if we know what we mean with sufficient accuracy for working purposes, this is enough, and we need not strive to attain pedantic precision ; but apart from the general desirability of defining our terms, the approximate accuracy which is enough for rough working purposes is not enough when subtle, intricate, and important problems have to be determined. Issues involving the determination of causes are frequently brought before Courts of Law, and of late years such issues have become much more frequent in connection with causes of disease, of death, of accident, and of injury. In trying such cases, judges have expressed the embarrassment they have suffered from the want of a trustworthy definition of cause. Many nice points of causation have lately come before the Courts, and have been decided in the absence of any clear or precise notion of what causation consists in, without that guidance from philosophers which judges have a right to expect. They have looked to philosophers for light and order, and they have found Cimmerian darkness and primæval chaos.

Nor is it only in the determination of individual issues that a knowledge of the nature of causation is important in law. A definition of causation, or at least a clear knowledge of what causation means and is, is the root and the basis of one very important department of law, reference to which is made in every case that is tried in the Courts. It is the basis of the Law of Evidence. According to that very high authority, Mr. Justice Stephen, the facts that may be proved in Courts of Law are the facts in issue, and those facts that are relevant to the

issue, and he defines relevancy thus : ' A fact is relevant to another fact when the existence of the one can be shown to be the cause, or one of the causes, or the effect, or one of the effects, of the existence of the other,' etc. Clearly, then, to determine what facts are relevant, and this has to be determined many times in the course of every trial, a knowledge of what is meant by causation, and of the nature of cause and of effect, is necessary. Mr. Justice Stephen, in fact, says that his work on Evidence is founded on Mill's Logic, and that a previous work on the Law of Evidence is founded upon Locke's ' Essay.' As to this previous work, I can give no opinion, but I am sure that Mr. Justice Stephen was mistaken when he said his work was founded upon Mill's Logic, for his treatise on the Law of Evidence is as clear and consistent as Mill's Logic is the opposite. Mr. Justice Stephen's admission is important, however, as showing that in his opinion the Law of Evidence does need a foundation in a proper apprehension of Causation.

In other important matters also the need for a clear notion of the meaning of cause and effect is imperative, and the want of it leads to grave disadvantages. The instructions issued by the General Register Office for assigning the causes of death are such that no doctor can understand them, and their unintelligibility is owing to the want of a definite notion of cause. The causes of insanity published in the annual tables of the Board of Control are mostly guesses ; some of them are manifestly not causes at all ; others may or may not be causes, but no reason is given why they should be so considered ; and in the absence of any definition of a cause, and of any trustworthy method of assigning causes, no reason could be given.

It is always assumed by writers on the subject that the only investigations that are worth making into the methods of assigning causes are investigations into the methods pursued by scientific workers, and that result in scientific discoveries. These writers, following Mill, formulate five methods, which, as I have said, they count as four, which they say are used by scientific workers. Scientific workers, however, never use these methods, and could not use them, for they are utterly futile, as will hereinafter appear. Moreover, the assumption that the methods employed by scientific workers to discover causes are in any respect different from the methods employed in everyday life by the cook, the gardener, the plumber, and the rest of

us, is quite groundless and mistaken. Men who work at science have no monopoly of methods of discovering causes. Their methods are not novel or peculiar, but are the same as those that we all constantly use in the course of our daily lives. For this reason I have not followed the course usual in books on Causation, of restricting my illustrative instances to examples of discoveries in science.

The chapter on Belief has been added at the request of a friend who, like most of us, has found himself often puzzled what to believe and what to disbelieve. It makes no pretensions to philosophical profundity, and to those who are accustomed to the ponderous tomes that have been written on the foundations of belief, and upon epistemology generally, it will appear, I am afraid, a trifling performance. These books, however, are scarcely accessible to the general reader, and if they were, it is doubtful whether he would take advantage of them. Some work accessible to him and intelligible by him is sorely needed. It is curious that in an age that prides itself before all things upon being scientific, there are as many prevalent beliefs that are irrational, baseless, absurd, and self-contradictory, as at any former time of which we have any record. We smile with confident superiority at the belief of our ancestors in witchcraft, but there was a great deal of very cogent evidence in favour of witchcraft, and it is little discredit to able and cultivated men, like Sir Matthew Hale and Sir Thomas Brown,* that they believed in it. Moreover, the age in which they lived was a credulous age; the age in which we live is sceptical; and yet we now see men as eminent in their several walks of life as Sir Matthew Hale and Sir Thomas Brown, even men who are considered, not very unjustly, leaders in science, holding beliefs much more irrational, and based upon much less evidence, than witchcraft—beliefs in spiritualism, telepathy, psycho-analysis, table-rapping, Christian Science, so called, and the crazy phantasies of the orthodox logician. When we witness these strange aberrations we may well wonder whether credulity has not rather increased than diminished in the last three centuries.

This book is not written for philosophers, and, indeed, it will be scouted by them, for it is written in ordinary English, and

* Usually spelt Browne, but on the title-page of my copy of his works, dated 1686, four years after his death, his name is spelt as in the text.

is quite easy to understand. From St. John Erigena, the first of the schoolmen, to William of Ockham, the last, and with the exception of Roger Bacon, the greatest ; from Francis Bacon, the pioneer of scientific method, to Martineau, Herbert Spencer, and Hughlings-Jackson ; the English nation has produced a succession of great philosophers such as all other nations put together would find it hard to equal, and impossible to excel ; yet during the last quarter of a century English philosophers have been content to tie themselves like a tin kettle to the tail of Germany, and to follow the cult of obscurity and unintelligibility that passes for philosophy in Germany, and now, alas ! in this country also. If I do not write Germanised or Germanic philosophy, it is not because I cannot. It would have been easy to fill my pages with stuff like this :

Causation is the act by which the Form of a significant idea presented in a content of Reality, recognised as such by means of a real Identity, is referred to a subject in Reality that is not really real or divergently diverse, but identical with the diverse content of Reality.

It is as easy as pie to write like this when once you have caught the trick of it. You have only to ring the changes on the words content and form, reality and identity, and you will pass for the most awe-inspiring and cogibundantly sublimificent philosopher ; but my spiritual home is not in Germany and I prefer to write in ordinary English for the ordinary reader, whose notions of cause and effect are not as definite as he could wish, who may be glad of some clear guidance in methods of assigning causes, and who may welcome assistance in deciding what to believe, to disbelieve, and to doubt.

CHAPTER I.

SOME THEORIES OF CAUSATION.

IN the whole of philosophy, confused as it is, there is scarcely any subject in such utter confusion as causation. There are references to it in the writings of his predecessors, but Hume was the first writer of note who discussed it at length, and he got it into a tangle which has been worse and worse entangled by subsequent writers, until the latest contributors to the discussion have essayed to cut the knots by denying altogether that there is such a thing as causation at all. Few writers treat the subject without contradicting themselves, and none without outraging common sense, a result which does not trouble them, for the first qualification for a philosopher is to set common sense at defiance. The consequence is that no one who retains any remnant of common sense can rise from the perusal of a discussion of causation without a feeling of dazed perplexity. He finds long discussions in which the cardinal terms are used in several different senses, and are either defined in several different ways or never defined at all. He finds things that are quite distinct, such as cause, condition, and agent, confounded together; he finds problems that are quite distinct, such as the nature of causation and the universality of causation, confounded together; and through all the discussions runs the difficulty inherent in examining and defining a notion that is almost primitive.

Primitive notions are by their very nature impossible to define or explain satisfactorily. They can only be described, and even description is not always easy or always satisfactory. Matter cannot be described except in terms of force, nor force except in terms of matter. It is manifest that defining and explaining more complicated notions in terms of simpler notions cannot be continued indefinitely. The process reaches its natural limit when at last we come to notions of primitive simplicity, just as the chemical analysis of substances reaches its natural limit when we have at last reduced them to elements. The notion of causation is almost elementary. Cause and effect, like matter and force, are terms that everyone understands more or less vaguely, more or less precisely, but that it

is difficult to express more simply for want of simpler terms. At any rate it has been found impracticable hitherto to express them, for every effort that has been made to do so has resulted in an expression that is either more obscure than cause and effect themselves, or that does not truly express what they mean.

Dr. Fowler says 'That a cause is . . . ; that every event has a cause ; that the same cause is always attended by the same effect ; are obviously three different propositions, and still there are few writers who in their treatment of the question of causation have not more or less confounded them.' This is quite true, and he might have added a fourth—we derive our notion of causation from . . . or the origin of our notion of causation is . . .

It is this fourth proposition that is the main theme of Hume's discussion, and he arrived at the conclusion, which is no doubt correct, that we get our notion of causation from witnessing repeated instances of it—that, in fact, as we should say now, it is a generalisation from many individual experiences. So far no doubt he was right ; but he went on to assume, and his whole argument rests upon the assumption, that because the notion of causation is a generalisation from repeated experiences, therefore causation itself does not exist in isolated or single instances, and, in fact, does not exist at all, but is a mental fiction, without any corresponding relation in fact.

The common sense doctrine that Hume undertook to demolish is 'that the idea of causation necessarily implies the idea of *power* or *necessary connection*, that is to say, between the cause and the effect, or *power* in the cause to produce the effect.' He set himself to show that power and necessary connection had been illegitimately imported into the idea of causation, and that what we call cause and effect is nothing but casual antecedence and consequence. Antecedence and consequence are all that we ever observe, or can observe ; but when we have witnessed many instances of the same antecedent being followed by the same consequent, we jump to the conclusion, without any justification for doing so, that there is between them a tie other and more than bare sequence—that there is a power in the antecedent to bring about the consequent, and a necessary connection between them. Thus Hume teaches.

Briefly put, his argument is that all our ideas are in the last resort analysable into simple ideas, which are themselves copies of impressions or original sentiments, by which he seems to mean what we now call percepts. 'These impressions are strong and sensible. They admit not of ambiguity.' Such are solidity, extension, and motion, each of which we can perceive, so Hume teaches, in a single experience; 'but the power of force . . . is entirely concealed from us, and never discovers itself in any of the sensible qualities of body.' He means, apparently, that we cannot see it: 'It is impossible, therefore, that the idea of power can be derived from the contemplation of bodies in single instances of their operation; because no bodies ever discover any power which can be the original of this idea.' Since, then, we obtain the notions of force or power and necessary connection, not from single experiences, but by generalisation from many experiences, these notions are fictitious, imaginary, and have no basis in fact, neither have they any existence except in our own misguided imaginations. This is Hume's doctrine.

It is very curious that this doctrine should have been practically accepted by every writer since Hume's time, and that no present-day philosopher should have detected any of the fallacies in it. Modern psychologists are pretty familiar, I should have thought, with the doctrine that every one of our concepts of the simplest properties of bodies—solidity, extension, motion, and the rest—is a generalisation from many experiences, and is in no case derived from a single instance, but is slowly built up in our early years under the guidance of experience. As far and in the same way as solidity, extension, and motion are revealed to us by experience, so far and in that way is force or power; and if force or power is not revealed in a single instance, neither is existence, extension, or motion. The only force that exists wholly in the imagination, and is without any counterpart outside it, is the force of Hume's argument.

'The generality of mankind never find any difficulty in accounting for the more common and familiar operations of Nature, such as the descent of heavy bodies . . . but suppose that, in all these cases, they perceive the very force or energy of the cause by which it is connected with its effect and is for ever infallible in its operation. They acquire, by long habit, such a

turn of mind that upon the appearance of the cause they immediately expect, with assurance, its usual attendant, and hardly conceive it possible that any other event could result from it.' They do, undoubtedly ; but are they not justified in so accounting for these operations of Nature ? What is the test ? What is the inexpugnable, infallible test ? It is that, acting on this supposition, they should never meet with experience that contradicts it ; and is not this test satisfied ? Hume says that force or power is never revealed in a single instance ; but, when the mind has been prepared by previous experiences to entertain the notion, is not the single instance of carrying a bucket of water sufficient to reveal the force or power of the weight of the bucket ? If a breaking wave, thundering upon the beach, and carrying away cartloads of shingle in the undertow, does not convey the idea of force or power ; if a hurricane, uprooting great trees, unroofing houses, and whirling haystacks into the air, does not convey the idea of force or power ; if an avalanche, carrying away woods and villages, and diverting the course of torrents, does not convey the idea of force or power ; then no 'contemplation of any body in single instances of its operation' can afford any idea of any description.

Hume denies that we derive the idea of power from subjective experience, from finding 'that by the simple command of the will we can move the organs of our body or direct the functions of our mind.' He denies it on the ground that 'we learn the influence of our will from experience alone, and experience only teaches us how one event constantly follows another ; without instructing us in the secret connection which binds them together and renders them inseparable.' But why should it ? We might as well deny that we derive from experience the idea that glue sticks to wood, because we know it from experience alone, and experience does not instruct us in the secret connection which binds the glue and the wood together and renders them inseparable.

Thus he summarises his conclusions : 'It appears that, in single instances of the operation of bodies, we never can, by our utmost scrutiny, discover anything but one event following another, without being able to comprehend any force or power by which the cause operates, or any connection between it and its supposed effect. . . . All events seem entirely loose

and separate. One event follows another ; but we never can observe any tie between them. They seem *conjoined*, but never *connected*.' Thus he virtually denies causation altogether, and, as we shall see later, recent writers accept this conclusion, and bring it forward as original with themselves ; but it is clear that this is Hume's position, though he never actually puts it into these words. Having arrived at this conclusion, which is a virtual denial that there is any such thing as causation, he admits that when a man has observed several similar instances of such conjoined events he 'can readily foretell the one from the appearance of the other' ; and then Hume astounds us by defining a cause as '*where, if the first object had not been, the second had never existed.*' It would be difficult to put the necessary connection between them in stronger terms, and Hume seems frightened at having made the admission, for he begins at once to hedge, and offers another, his third, definition of a cause : *an object followed by another, and whose appearance always conveys the thought to that other.* Thus he removes the reference from the world of things to the world of thoughts, and places the matter on an entirely different basis. At length he concludes : 'I know not whether the reader will readily apprehend this reasoning. I am afraid that, should I multiply words about it, or throw it into a greater variety of lights, it would only become more obscure and intricate.' In this he is no doubt right. His argument is based on a premiss that is thoroughly unsound, and leads to a conclusion that is repugnant to universal experience, and that he is himself compelled to repudiate. However, the mischief was done. He opened the floodgates of confusion, and his successors have ever since been floundering in the swamp.

Mill's whole treatment of the problem of causation is a most deplorable muddle, and that he should have been regarded as an oracle for two generations is a startling proof of the poverty of critical acumen and philosophic insight that has prevailed since his *Logic* appeared. It is evident on the most superficial perusal of his chapters on the subject that he has never thought it out ; he wanders on from conjecture to surmise, and from surmise to conjecture, stating his surmises and conjectures as inexpugnable facts ; he defines cause and causation over and over again in eighteen different ways, most of them inconsistent with each other, and some of them contra-

dictory of others, and neither he nor his commentators and followers recognise the inconsistencies or the contradictions. The only explanation of his astonishing and overwhelming reputation is that amongst the blind the one-eyed is king ; but even Mill's one eye was purblind.

Mill first states Hume's doctrine in its bare nakedness : 'The Law of Causation . . . is but the familiar truth, that invariability of succession is found by observation to obtain between every fact in Nature and some fact that has preceded it.' It may be noted in passing that however familiar and however true this may be, it is certainly not found by observation, and Mill's study of Hume should have warned him not to make so absolute an assertion ; for Hume says very truly 'on the discovery of extraordinary phenomena, such as earthquakes, pestilence, and prodigies of every kind, they find themselves at a loss to assign a proper cause,' and there are still innumerable facts in nature which baffle all our attempts to discover their causes. However, Mill goes on : 'To certain facts, certain facts do, and, as we believe, will continue to succeed. The invariable antecedent is called the cause ; the invariable consequent, the effect.' He does not recognise that this statement differs very materially from the former. First he says that every fact has an invariable antecedent, and then he says that every fact has an invariable consequent, and he regards the two assertions as equivalent. In his next statement he goes back to his first position, and says : 'The universality of the law of causation consists in this, that every consequent is connected in this manner [invariably] with some particular antecedent, or set of antecedents.' In this he airily gives away Hume's whole position, and introduces a new and vitally important element, without in the least recognising that he is doing more than restating his previous doctrine. The antecedent now not only invariably precedes the consequent, but also is connected with it, a doctrine which Hume positively denies, and which, when introduced into what is virtually a restatement of Hume's doctrine, requires at least some justification or explanation ; but none is given.

As is well known, Reid demolished Hume's definition of causation as invariable succession by adducing the case of night and day. Night invariably follows day, and day invariably follows night, and yet neither is the cause of the other. Clearly,

some qualification and addition is necessary, and Mill, though he gives the expressions quoted above as complete and sufficient statements of the nature and relation of cause and effect, evidently recognises that some qualification and addition is required, and supplies one, in fact, he supplies a good many, not as successive approximations to a complete definition, not as tentative proposals to be discarded when found inappropriate, but all of them as final and complete definitions, which are immediately superseded by others, which are superseded in their turn.

It is very common, he says, when there are many antecedents (as if there were ever an effect that had not many antecedents, and he does not say invariable antecedents connected with the consequent, though presumably he means such antecedents) to single out only one of them under the denomination of cause, calling the others merely conditions. 'But though we may think proper to give the name of cause to that one condition, the fulfilment of which completes the tale, and brings about the effect without further delay ; this condition has really no closer relation to the effect than any other of the conditions has.' This leads him to his fourth definition, different from all the rest. 'The cause, then, philosophically speaking, is the sum total of the conditions, positive and negative taken together ; the whole of the contingences of every description, which being realised, the consequent invariably follows.'

Having given this final definition of what the cause is, philosophically speaking, he discusses it further, and finds that it won't do. He now finds it necessary 'to advert to a distinction which is of first-rate importance,' which, in spite of its first-rate importance, has been omitted from his previous definitions. Invariable sequence is not synonymous, he now finds, with causation, unless the sequence, besides being invariable, is also unconditional ; and this he says immediately after he has defined the cause as 'philosophically speaking,' the sum total of the conditions. It is, therefore, philosophically speaking conditional, and speaking otherwise unconditional. This leads him to his fifth definition, according to which a cause is 'the antecedent, or the concurrence of antecedents, of a phenomenon, on which it is invariably and *unconditionally* consequent.' Still dissatisfied, as well he may be, he tries again, and gives a sixth definition, 'which confines the meaning of the word cause, to

the assemblage of positive conditions without the negative, and then, instead of unconditionally, we must say "subject to no other than negative conditions"; and if this does not satisfy, he has 'no objection to define a cause, the assemblage of phenomena, which occurring, some other phenomenon invariably commences or has its origin.' So that after asserting in the most positive terms that invariable sequence is not causation unless the sequence, besides being invariable is also unconditional, he now drops unconditionalness, and goes back without a word of apology to invariable sequence.

It would be tedious and unprofitable to examine any further the mass of confusion and contradiction contained in Mill's exposition of causation, but lest it should be thought that I have at all exaggerated, I will set down here a series of extracts from his Logic.

He prefaces his discussion of causation with the following warning: 'The notion of cause being the root of the whole theory of Induction [it is not], it is indispensable that this idea should, at the very outset of our inquiry be, with the utmost practicable degree of precision, fixed and determined.' This he says, and more than two hundred pages later he is still altering his definition of cause; more than three hundred pages later he alters his definition of causation. This is how he fixes and determines his notion of cause with the utmost practicable degree of precision:—

'The Law of Causation . . . is but the familiar truth that invariability of succession is found by observation to obtain between every fact in Nature and some other fact which has preceded it.' I, 376.

'The invariable antecedent is termed the cause, the invariable consequent, the effect.' I, 377.

'If it [the fact] has begun to exist, it was preceded by some fact or facts with which it is invariably connected.' I, 377.

'The real Cause is the whole of those antecedents.' I, 378.

'All the conditions were equally indispensable to the production of the consequent; and the statement of the cause is incomplete unless in some shape or other we introduce them all.' I, 379. Condition is not defined.

'The cause, then, philosophically speaking, is the sum total of the conditions, positive and negative, taken together; the whole of the contingencies of every description, which being

realised, the consequent invariably follows.' I, 383. Contingency is not defined.

'It is necessary to our using the word cause, that we should believe not only that the antecedent always *has* been followed by the consequent; but that, as long as the present constitution of things endures, it always *will* be so.' I, 391.

'That which will be followed by a given consequent when, and only when, some third circumstance also exists, is not the cause, even though no case should have occurred in which the phenomenon took place without it.' I, 392.

'Invariable sequence, therefore, is not synonymous with causation, unless the sequence, besides being invariable, is unconditional.' I, 392.

'We may define, therefore, the cause of a phenomenon, to be the antecedent, or concurrence of antecedents, on which it is invariably and *unconditionally* consequent'; or

'The antecedent, or the concurrence of antecedents, on which it is invariably and subject to no other than negative conditions consequent'; or

'The antecedent, or the concurrence of antecedents, in which it is invariably and whatever supposition we may make about things, consequent.' I, 392.

'The series of the earth's motions, therefore, though a case of sequence invariable within the limits of human experience, is not a case of causation.' I, 394.

'I have no objection to define a cause, the assemblage of phenomena, which occurring, some other phenomenon invariably commences, or has its origin.' I, 397.

'There is no Thing produced, no event happening in the known universe, which is not connected by an uniformity, or invariable sequence, with some one or more of the phenomena which preceded it.' I, 400.

'The state of the whole universe at any instant, we believe to be the consequence of its state at the preceding instant.' I, 400.

'The law of causation is, that change can only be produced by change.' I, 407.

'In this example we may go further, and say, it is not only the invariable antecedent but the cause.' I, 450.

'The *cause* of it, that is, the peculiar conjunction of agents from which it results.' I, 511.

'That which would not be followed by the effect unless something else had preceded, and which if that something else had preceded, would not have been required, is not the cause, however invariable the sequence may in fact be.' II, 37.

'Fresh causes or agencies.' II, 38.

'The uniformity in the succession of events, otherwise called the law of causation.' II, 108.

From these dicta we may extract the following definitions or descriptions of cause, and in repeating them I will put in italics the words which are discordant or incongruous with previous utterances.

A cause is :

- (1) The invariable antecedent.
- (2) The preceding fact with which the effect is invariably *connected*.
- (3) *The whole* of the antecedents.
- (4) All the *conditions*.
- (5) The *sum total* of the conditions.
- (6) The whole of the *contingencies*.
- (7) The antecedent which not only always has been followed, but that always will be followed by the consequent ; although
- (8) That which always has been and always will be followed by the consequent is not necessarily the cause.
- (9) The invariable *unconditional* antecedent.
- (10) The antecedent on which the effect is invariably *and subject to no other than negative conditions* consequent.
- (11) The antecedent on which the effect is invariably consequent *whatever suppositions we may make about other things*.
- (12) *The assemblage of phenomena*, which occurring, some other phenomenon commences or has its origin.
- (13) *The peculiar conjunction of agents* from which the consequence results.
- (14) *An agency*.

Causation, or the Law of Causation, is :

- (1) Invariability in succession.
- (2) Invariable *and unconditional* sequence.
- (3) *Uniformity* in the succession of events.
- (4) *That change can only be produced by change*.

In addition to the discordances in these definitions, account must be taken of the following pairs of assertions :

'Causation is invariability of succession.'

'The series of the earth's motions, though a case of sequence invariable within the limits of human experience, is not a case of causation.'

'The cause is the invariable antecedent.' 'The invariable antecedent is the cause.'

'That which would not be followed by the effect unless something else had preceded, and which if that something else had preceded, would not have been required, is not the cause, however invariable the sequence may in fact be.'

'Causation is invariability of succession.'

'Invariability of sequence is not synonymous with causation unless the sequence, besides being invariable, is unconditional.'

The majority of writers since Mill have followed rather slavishly in his footsteps, but a few recent writers have struck out more independent courses, and some of these must be examined. I confine the examination to the writings of Mr. Welton, Prof. Karl Pearson, Mr. Bertrand Russell, and Dr. McTaggart.

Mr. Welton accepts Mill's doctrine that the cause is the sum of the conditions, though he prefers to call it the totality of the conditions, but he rejects altogether the time factor, or antecedence and consequence, which every previous writer on the subject considers a necessary ingredient in our concept of causation. 'The cause,' he says, 'is not dependent on time sequence. For if we analyse any case of causation we find that time sequence is not an essential aspect of it.' I am not so sure. *Gutta cavat lapidem*. The continual dropping of water wears away a stone, and surely this takes time. The ploughing, harrowing, and sowing of the ground are causes of the subsequent harvest, but the harvest is not simultaneous with these operations. It gradually matures for months, and not until months have elapsed is the effect produced. The administration of an excess of food causes a pig to grow fat, but the pig does not instantaneously explode into a state of obesity. Perhaps, however, in giving these examples I should be tripped up by the expression, 'essential aspect.' What an essential aspect may be I do not know, but whatever it is, I find it hard to reconcile Mr. Welton's assertion with his subsequent assertion that the fact to be accounted for is change. Change, he says, implies something which changes. So it does, but it implies

something else also. It implies duration. We speak of instantaneous changes, but in fact and in Nature there is no such thing. Change implies duration. It implies an antecedent state from which, and a subsequent state to which, the change takes place. If the fact to be accounted for is change, which Mr. Welton says it is, and which it is sometimes, then causation does imply sequence in time, and time sequence is an 'essential aspect' of it, if by an essential aspect of it Mr. Welton means a necessary factor in it.

But he has another reason for rejecting time sequence as a factor in causation. We cannot, he says, find the explanation of change in preceding change; for that would simply land us in infinite regress; by which he means that for each cause we must find a preceding cause, and so *ad infinitum*. I do not see the necessity. In following the chain of causes backward we can stop where we please, and we usually have a good reason for stopping at a certain point; but supposing that time sequence in causation does land us in infinite regress, why not? There is nothing inconsistent with our knowledge of the universe in supposing that the causes of any change go back to an infinity of past time. Infinite regress is no argument against the time element in causation. Mr. Welton might as well say that the explanation of night and day cannot be found in the rotation of the earth, for that would simply land us in a movable earth. No doubt it would, and what then?

Instead of sequence in time, Mr. Welton presents us with contiguity in space as the necessary element, or, as he calls it, the essential aspect, of causation; for, he says, it is only under the form of space that we can rationalise our experience of the influence of bodies on each other. I must confess I cannot fathom this cryptic reason. I do not know what the form of space is, nor do I know how to rationalise an experience; but if by essential Mr. Welton means necessary, and if by contiguity he means contact, or even nearness in space, of an acting body to a body acted on and consequently changing, then I deny altogether that contiguity is essential to causation. The instance that must at once occur to everyone is the action of an astronomical primary in causing the motion of its satellite to pursue a certain path. Mr. Welton sees this, and his way out of the difficulty is a very extraordinary one. 'How,' he

says, 'can we conceive a causal influence exerted on an object distant in space from the agent; as *e.g.* that of the sun on the planets? In reply to this it must be said that in one very true and important sense of its reality a body must be thought to be where its influence is felt: the power of exerting influence is one of its properties, and where, therefore, that power is felt there the agent truly *is* in this, the only applicable sense. Of course in another sense of its reality—the sense in which reality is identified with visible and tangible form and tangible resistance—the body may be absent, but then that aspect of its reality is, in this case, beside the mark.' If Mr. Welton succeeds in deceiving himself by thus juggling with the word reality, the abracadabra of the philosophy that is made in Germany, I know not whether he is more to be envied or pitied, but I am very sure that he will not deceive anyone else who has any appreciation of the meaning of words. He might as well say that the German Emperor is omnipresent throughout Central Europe, for that is where his influence is felt. He might as well say, when a drunken man gives his companion a black eye, that in a very true and important sense of its reality the drink is in the black eye, for that is where its influence is felt. Of course, in another sense of its reality the drink is absent from the eye, but then that aspect of its reality is beside the mark on the eye. Mr. Welton is, I am afraid, not so thoroughly Germanised as he tries to make out. No truly Germanised philosopher would spell the word Reality without the capital, which makes it so much more imposing. It will not, however, impose upon anyone who looks to the meaning of words.

Cause and effect, says Mr. Welton, are not successive, but simultaneous; and to prove this he instances the formation of water. 'The cause of the formation of water is the combination in definite proportions of hydrogen and oxygen, but this combination does not precede the formation of water, it *is* that formation.' Of course it is. He is juggling with words again. The formation of water is the same thing as the combination of the two gases. That is a truism. It is an identical expression. It is expressing the same thing in two different sets of words. But the combination of oxygen and hydrogen, which is the formation of water, is not the cause of that formation. The cause of the formation, or of the combination, is first the mixture

of the gases, and then the passage of a spark through them. And though the formation of water and the combination of the gases is simultaneous, if, that is to say, a process can be said to be simultaneous with itself, it is not simultaneous with the mixing of the gases, nor is it simultaneous with the passage of the spark. The mixing of the gases may precede the combination by days, months, or years; and though the combination follows very rapidly on the passage of the spark, they are not simultaneous. The combination begins in the neighbourhood of the spark, and spreads throughout the mixture, and this spreading takes time—a very short time, it is true—but it takes time. The passage of the spark is antecedent, the formation of water is consequent.

‘So it is,’ says Mr. Welton, ‘in every other case.’ I agree to this extent, that in every other case of change in which he makes out that the cause is simultaneous with the effect, either what he calls the cause is not the cause, or what he calls the effect is not the effect.

Mr. Welton continues thus : ‘We, then, arrive at this. Cause and effect are not two but one.’ So we advance from contiguity in space to simultaneity in time, and from simultaneity in time to identity! How a body, supposing, as Mr. Welton supposes, that a cause can be a body, can be contiguous in space to itself, I do not know. I suppose that is another aspect of its Reality. The question that arises in my mind is whether the body is beside itself, or whether the person who makes the assertion is beside himself.

A dropping of ink, says Mr. Welton, upon paper causes a blot, but the blot is there as soon as the contact of ink and paper is made : it *is* that contact. But on his own showing it ought not to be. What he says is that cause and effect are one, but the one he takes is neither cause nor effect. The cause is the dropping of the ink : the effect is the blot. If cause and effect are one, the blot ought to be the dropping of the ink ; but Mr. Welton says it is not. It is the contact of the ink with the paper. Such confusion and self-contradiction could scarcely be found outside a book on logic. By a parity of reasoning, when a man gets into bed, the getting into bed *is* the man, or, if we take Mr. Welton’s second alternative, which he does not recognise as an alternative, but asserts as the same thing, then the contact of the man with his bed *is* the man. It

ought not to be necessary to clear up such a very simple matter, but seemingly it is necessary to point out that the blot is not the contact of the ink with the paper: the blot is the layer of ink in contact with the paper. And this layer of ink on the paper does not appear simultaneously with the dropping of the ink, it follows the dropping of the ink. The blot is not on the paper until the dropping is arrested by the paper, is over and done.

The fact to be accounted for, says Mr. Welton, is change; and the first example of causation that he adduces is that the weight of the atmosphere is the cause of the height of the mercury in the barometer. But the height of the mercury in the barometer is not a change. Quite the contrary. The fact to be accounted for in this case is not change, but the absence of change. The fact to be accounted for is that the mercury in the barometer does not sink. Perhaps the explanation is to be found in another aspect of Reality, and it may be that in a very true and important sense of its reality the absence of change is the same as change. It is perhaps a Reality of Identity, or an Identity in Reality, such as Mr. Bradley and Dr. Bosanquet delight in.

'We, then, arrive at this,' says Mr. Welton, 'cause and effect are not two, but one. That they are inseparable is indeed recognised by the relativity of the terms themselves. A cause without an effect, or an effect without a cause, is a contradiction in terms and unthinkable.' So it is, but it is not more unthinkable than a cause which is identical with its effect, or an effect which is identical with its cause. 'But we must go further,' says Mr. Welton, 'and say that in *content* they are absolutely identical. It is only in *form* that they can be distinguished.' Here is the hoof—it is not a cloven hoof, but a soliped—of Germanism again. Content is another of its shibboleths or abracadabras. Content and form, reality and identity, are its stock-in-trade, they are the four hoofs on which it goes. Lug them in by head and shoulders, use them in any sense or nonsense that you please, mix them up anyhow, and you will pass for an up-to-date philosopher. Mr. Welton confines his illustrations to cause and effect, but it seems a pity so to limit the application of such a fertile philosophical principle, and I rejoice in being able to extend it to other pairs of relatives. Parent and offspring are not two but one. That they are

inseparable is indeed recognised by the very relativity of the terms themselves. A parent without offspring, or an offspring without a parent, is a contradiction in terms, and unthinkable. But we must go further, and say that in *content* they are absolutely identical. It is only in *form* that they can be distinguished. And the same is true of higher and lower, outside and inside, murderer and victim, robber and robbed. In *content* they are absolutely identical. It is only in *form* that they can be distinguished. How charming is divine philosophy!

If cause and effect are not two, but one; if they are absolutely identical (I leave out content, for I do not know what the content of a cause is, or how it can have any content. A cause is not a box or a bag); if, I say, they are absolutely identical, how idle it is to seek for causes or for effects! The main occupation of the whole human race, ever since it attained the status of humanity, is founded on a chimæra. What is the cause of the alternation of day and night? That silly man, Copernicus, thought he had discovered it. What is the cause of the spout of blood from a severed artery? The stupid Harvey thought he had discovered it. What is the cause of the suppuration of wounds, of pyæmia, of septicæmia? The foolish Lister pretended that he had discovered it. What is the cause of malarial fever? of earthquakes? of Brown's success in growing roses? of Jones' failure to secure the hand of Miss Robinson? What is the cause of mimicry in animals? What makes the days warmer in summer than in winter?

What makes the price of corn and Luddites rise?
What fills the butchers' shops with large blue flies?

And finally, what is the cause of philosophers writing nonsense? Nothing could be clearer. Nothing could be plainer or more manifest. The chief, the most important, the most absorbing occupation of mankind has always been the search for causes. What folly! The causes were under their noses all the time. They saw the effects, and the effects are absolutely identical with the causes.

Another recent writer on the subject is Prof. Karl Pearson, whose *Grammar of Science* has achieved a popularity remarkable for a work of the kind. It is disfigured by much uncouth phraseology, and by the Papal infallibility that the author claims for his own doctrines, which he attributes to a personified

science. On nearly every page he speaks of 'a routine of experience,' a 'routine of sense impressions,' a 'routine of perceptions.' These are his fundamental terms, but he never defines them, and we are left to conjecture what he means by them. Far on in the book he speaks of the routine of perceptions as equivalent to 'the uniform order of phenomena,' and 'the uniformity with which sequences of perception are repeated'; but whether this is another name for causation, or whether it is merely our old familiar friend the Uniformity of Nature, we are left in doubt. Even if he does mean the Uniformity of Nature, we are no better off, for no two philosophers agree on what is to be meant by the Uniformity of Nature. The only thing on which they agree, and when they do agree their unanimity is wonderful, is that Nature is not uniform.

Much of the authority that Prof. Pearson's *Grammar of Science* has unquestionably achieved is due to his habit of attributing his own opinions to a personified science, a trick that enables him to pose as infallible, while adroitly avoiding the appearance of arrogance that such a pose carries with it. When he says that for science cause is meaningless, he means that Prof. Pearson does not understand the meaning of it; when he says that science can in no case demonstrate this or that, he means that Prof. Pearson cannot demonstrate it; when he says that science can find no element of enforcement in causation, he means that Prof. Pearson is too blind to see the element of enforcement; and so on. This is an adroit method of imposing on the gullibility of his readers, for who, in these 'scientific' days, would have the temerity to question the pronouncements of science? But I must confess to some surprise that it has been so successful. I should have thought that it might have occurred to some one that science in this sense is only a name for a body of opinion; a body of fluctuating opinion, varying from time to time and from person to person, so that what is science to-day was heresy yesterday, and will be superstition to-morrow; what is science to one is stupidity to another, and falsehood to a third. What is science to Prof. Pearson, for instance, is nonsense to me.

Professor Pearson belongs to the school of Hume and Mill, and with them denies that there is any 'enforcement' of an effect by its cause, or any necessary connection between them. The cause is merely the antecedent, the effect merely the sub-

sequent. The one happens to follow the other, but there is no reason or necessity why it should do so : they are in no way connected ; but when we see repeated instances of the same succession of events, we deludedly jump to the conclusion that the predecessor is the cause of the successor. Almost as soon as it was stated, Reid blew this doctrine sky high by adducing the instance of night and day. Day always precedes night, and night always follows day, but no one supposes that day is the cause of night or that night is the effect of day. And why not ? Manifestly because they are merely antecedent and subsequent ; because there is no power in day to produce night ; because there is no enforcement of night by day. Prof. Pearson bases his repudiation of enforcement on practically the same ground as Hume does, *viz.*, that our notion of force is purely imaginary, and has no counterpart in the world outside our imagination. In this he confuses, as Hume does, imaginary with conceptual. Our concept of force, like all our concepts of primitive things, such as motion, resistance, extension, duration, and so forth, is a generalisation from many experiences of individual instances ; and if we are to discard the one because it is conceptual, that is to say, a generalisation, then we must discard the rest for the same reason. In that case our minds are left blank, and reasoning is impossible for want of pabulum. In contradiction to this doctrine it is enough to appeal to universal experience. By cause we do not mean mere antecedence, nor by effect do we mean mere succession. If we did, we should accept day as the cause of night, and night as the effect of day. If we did, the old and notorious fallacy, *post hoc, ergo propter hoc*, would be no fallacy : it would be an unassailable truth ; yet the same logicians who declare in their Chapters on Causation and Induction that causation is nothing but sequence, declare in their Chapter on Fallacies that it is fallacious to argue from *post hoc* to *propter hoc*. But no inconsistency or self-contradiction in a doctrine ever yet deterred logicians from teaching it ; and no doubt they will continue to teach this self-contradiction along with the rest, until the whole silly pseudo-science is swept away, and goes to join Judicial Astrology, Phrenology, and Humoral Pathology upon the rubbish heap. In forming our idea of cause and of causation, the enforcement of the effect by the cause enters as an inseparable and necessary element into the notion, and if that

element is extruded, that which appeared to be a cause is a cause no longer. 'The necessity,' says Prof. Pearson, 'thus lies in the nature of the thinking being, and not in the perceptions themselves ; thus it is conceivably a product of the perceptive faculty.' How it can be a product of the perceptive faculty and not be a percept or perceived ; how that can be perceived which is purely imaginary, and has no sensory impression as a basis or provocation to perception, Prof. Pearson does not inform us. His psychology is as hazy as his notion of causation.

However, Prof. Pearson goes with the crowd, and quotes as from Mill the definition that causation is uniform antecedence ; and this definition, says Prof. Pearson, is perfectly in accord with scientific concept—that is, with Prof. Pearson's concept. It may be a good definition, but when Prof. Pearson says it is John Stuart Mill's definition, he is mistaken. Among all of Mill's many definitions of cause and causation this one is not to be found. In this instance 'science' is at fault.

'For science,' that is, for Prof. Pearson, 'cause, as originating or enforcing a particular sequence of perceptions, is meaningless—we have no experience of anything which originates or enforces something else.' The most obvious answer to this is that it is not true. It contradicts the whole experience of the whole human race. Every time we move a thing from one place to another we demonstrate the falsity of the assertion. The word 'originating' is used equivocally. A change in anything is originated when the change begins ; that is, when the thing begins to change. But it seems from the context that Prof. Pearson denies that change—the sequence of perceptions, as he calls it—is then originated, because it can always be traced to previous change, and therefore in this sense it is not 'originated.' This is an obvious confusion. The particular change in the thing changing is none the less originated, although it may be the effect of some previous change in something else. What Prof. Pearson means is that the total sequence of changes never originates, or, as I should say, begins. It is the same difficulty that Mr. Welton calls infinite regress, and which he takes as a conclusive argument against the time element in causation, while Prof. Pearson takes it, with equal inconsequence, as an argument against causation itself. In so far as it is an argument at all,

it is as much an argument against the existence of change as against the existence of causation, or of a time element in causation ; but it is no argument against either. Grant that change generally, apart from individual changes, never begins, but can be traced back until it is lost in the infinity of past time, still that is no argument against causation. It merely shows that every cause has itself a cause ; and so far from abolishing causation, it renders causation more than ever certain, and necessary, and universal. But I need not labour the argument, for Prof. Pearson has himself refuted it. On p. 9 he says, 'the man who has accustomed himself to marshal facts, to examine their complex mutual relations, and predict upon the result of this examination inevitable sequences.' Here he is evidently referring to himself, and if a sequence is inevitable, it is enforced ; it is necessary ; it is not the mere casual sequence that he says causation is. To say that a sequence is inevitable, and to say that it is enforced, is to say the same thing in different words.

However, Prof. Pearson sees what Hume did not appear to see, and what Mill certainly did not see, that if we take away from causation the element of enforcement, or of power in the cause to produce the effect, causation vanishes with it, and the only logical attitude is to deny altogether that there is any such thing as causation. To this necessary result of their teaching, Hume and Mill were blind ; but Prof. Pearson sees it, and Mr. Bertrand Russell sees it, though they both see it only in transitory and occasional glimpses, and for the most part lose sight of it. They both deny that causation exists, and they both define what it is—not what it means, but what it is. Prof. Pearson asserts that the 'category of cause and effect' is a fetish ; that the law of causation is a figment ; that no experience demonstrates causation ; that for science, that is to say, for him, cause is meaningless ; and he asks whether causation is anything but a conceptual limit to experience, a cryptic question that, for my own part, I am unable to answer until I know what it means. Having said this, he says he will show how antecedents are true scientific causes ; he states the law (which, by the way, is nonsense, as he himself in another place shows, though he endorses the law) that the same set of causes is always accompanied by the same effects ; he says that no phenomenon has only one cause ; and he even goes so far

as to say we fail to comprehend a world to which the conception of cause and effect would not apply. How he reconciles these contradictions in his own mind I shall not speculate, but I am very sure that he will not succeed in reconciling them in the mind of anyone else, except, perhaps, in the minds of Mr. Bradley and his followers, or in the mind of a German of the school of Hegel.

The most popular doctrine of Prof. Pearson's is his distinction between *how* and *why*, a distinction which is either the cause, or the chief effect, of his theory of causation. He denies that we can ever discover *why* a thing happens, or explain it; and limits our powers to saying *how* it happens, or describing it. In this he is demonstrably wrong. It is often as impossible to describe how things happen as to explain why they happen: it is often as easy to explain why they happen as to describe how they happen. The fact is that both *how* and *why* are equivocal words, having more than one meaning; but whichever meaning we take, what I have said is true. *How* may mean in what manner, or it may mean by what means. *Why* may mean for what purpose, or it may mean in obedience to what law, in conformity with what rule. In any of the four cases the answer may be easy, or difficult, or impossible; and as to either *how* or *why*, we may be able to answer one meaning and not the other. If, for instance, we ask how, in the sense of by what means, gravity acts, we cannot answer. It is impossible to imagine by what means a body can attract another through an immeasurably great distance. It is only when we ask how, in the sense of in what manner, gravity acts that we are able to answer that it acts inversely as the square of the distance. If we ask why, in the sense of with what purpose, the sap circulates in the tree, we have no difficulty in explaining that it is that the sap may be aerated, the tree nourished, its life maintained, and its growth increased. It is only when we ask why, in the sense of in conformity with what law, the sap circulates, that we are unable to answer. We do not know whether it is capillary attraction or what it is.

A good example of the manner in which Prof. Pearson poses as a superior being is the advice he gives to his readers, to analyse what is meant by such statements as that the law of gravitation *causes* bodies to fall to the earth. The law, he says, really describes how bodies do fall. Of course

it does ; but before Prof. Pearson gave this advice to his readers, he should have shown some evidence that some one besides himself had ever said such a silly thing. As far as I know, no one has ever pretended that the *law* of gravitation causes bodies to fall to the earth ; but if anyone should say that the *fact* of gravitation—the fact that they attract each other—causes bodies to fall to the earth, he would say what is exactly and punctually true. The law of gravitation describes *how* bodies fall : the fact of gravitation explains *why* they fall ; and the explanation is as good and as valid as the description. As far as I know, Prof. Pearson never answers the actual arguments of real antagonists ; and if he prefers the easier task of answering silly arguments that he puts into the mouth of an imaginary antagonist, then, whatever we may think of his courage and sincerity, we cannot question his wisdom.

Mr. Bertrand Russell follows Professor Pearson in denying the existence of causes. He says there are no such things. He wants the word abolished, and regards the law of causation, or, as he calls it, of causality, as a relic of a bygone age. To prove this contention he selects from Baldwin's *Dictionary* the definitions given therein of Causality, of the notion of Cause and Effect, and so forth ; he takes one of Mill's definitions of Causation, and an expression of Bergson's, and analyses them all destructively.

All these expressions assume, and Mr. Russell repeatedly in his own expressions assumes, that repetition of instances is necessary before we can identify causation, and I think it is not too much to say that he regards recurrence or repetition as a necessary element, either in causation itself, or in our idea of causation. The definitions that he quotes all countenance this supposition. They run : *Whenever* the cause ceases to exist ; *whenever* the effect comes into existence ; the Law of Causation is *invariability* of succession ; the *same causes* produce the *same effects* ; a certain phenomenon will not fail to *recur* ; and so on ; and he himself says that an ' event ' in the statement of the law is obviously intended to be something that is likely to recur ; and he makes this the basis of his criticism. Criticism directed against such notions of causation, however destructive of them it may be, is not relevant against a definition of cause or of causation into which the element of repetition or recurrence does not enter. To me, repetition or

recurrence is not a necessary ingredient, either of causation itself, or of my idea of causation, and therefore against my definition Mr. Russell's attack is not directed ; but even against the definitions that he does attack, erroneous as I believe them to be, his criticisms do not appear to me to be destructive, or even damaging.

Thus he confutes the succession in time of cause and effect, or that antecedence and consequence on which Mill and his school lay so much stress : 'No two instants are contiguous, since the time series is compact.' I cannot see that the conclusion follows from the premiss. It seems to me that the more compact the time series, the more closely contiguous must be its instants. If Mr. Russell means that time is continuous, and not made up of instants separated from one another by intervals that are not time, or in which there is no time, I should agree with him ; but it is only in such an interrupted time series that the instants would not be contiguous. An instant, like an hour or a day, is a portion of time arbitrarily divided by an imaginary limit from that which precedes and that which follows, with both of which it is continuous or contiguous. But if Mr. Russell is right, and no two instants are contiguous, and if serial contiguity in time between cause and effect is necessary to causation, then this settles the question : then causation is impossible, and Mr. Russell's further argument is redundant, supererogatory, and unnecessary. But he does not think so, for he goes on : 'Hence either the cause or the effect or both must, if the definition [Baldwin's definition of Cause and Effect] is correct, endure for a finite time . . .' I agree that both the cause and the effect must endure for a finite time, though I do not see how this follows from the supposition that no two instants of time are contiguous. 'But then we are faced with a dilemma : if the cause is a process involving change within itself, we shall require (if causality is universal) causal relations between its earlier and later parts ; moreover, it would seem that only the later parts can be relevant to the effect, since the earlier parts are not contiguous to the effect. Thus we shall be led to diminish the duration of the cause without limit, and however much we may diminish it, there will still remain an earlier part which might be altered without altering the effect, so that the true cause, as defined, will not have been reached.' This may

or may not be an effective criticism of a definition of cause and effect that defines them as contiguous in time, but to me it is too much like the old problem of Achilles and the tortoise to be convincing. Zeno proved quite satisfactorily that Achilles could never overtake the tortoise—only he did ; and Mr. Russell proves less satisfactorily that there is no such thing as causation, but yet he, in common with the rest of us, always acts on the supposition that there is such a thing, and, so acting, he never meets with experience that contradicts the supposition ; and this is for us the conclusive and inescapable proof, first that the supposition is true, and second that Mr. Russell is convinced that it is true.

He goes on to show that if cause and effect are not contiguous in time, then there must be an interval between them ; and 'since there are no infinitesimal time intervals' this lapse of time must be finite. But if there is a finite interval of time between cause and effect, something may happen in that interval to prevent the effect following the cause. It is all very pretty word spinning, and for all I know it may apply to the kind of 'causality' that occurs in the moon, or in a universe of one dimension, but it has no relation whatever to causation as it is known on this earth. Mr. Russell assumes that effect follows cause in the sense of what carpenters call a butt joint, in the sense that the effect does not begin until the cause has ceased to act. That may be what happens in some other universe, but it is not what happens here. What happens here is quite different, as Mr. Russell might have known if he had considered an actual case of causation instead of speculating with $e_1, e_2, \dots e_n$, and $t_1, t_2, \dots t_n$, and τ . When, for instance, a man pushes a trolley, he causes it to move. The pushing is the cause, the movement is the effect. But the effect is not postponed until the cause has ceased to act. The effect does not come suddenly into existence at an instant contiguous to the cessation of the cause. The effect begins as soon, or almost as soon, as the cause begins ; thereafter, cause and effect, the pushing and the movement, accompany one another, and proceed contemporaneously for a certain time ; and at length, when the cause ceases, the effect ceases. Cause is contiguous to effect in this case, not end to end, but side by side for the greater portion of their duration. The joint is not a butt joint but a fish joint ;

LXII.

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and all Mr. Bertrand Russell's pretty word spinning goes for nothing.

His own statement of 'causality,' cannot, he says, be put accurately in non-mathematical language ; the nearest approach would be as follows : 'There is a constant relation between the state of the universe at any instant, and the rate of change at which any part of the universe is changing at that instant, such that the rate of change in the rate of change is determinate when the state of the universe is given.' It is with diffidence that I comment on this mysterious formula, but it seems to me clear that if anything can be discovered by its means, it is not the cause of a change, but the rate at which a change takes place, or rather the rate of change in a rate of change ; which may be a desirable thing to know, but by no perversity of ingenuity can be twisted or tortured into a cause. But suppose the impossible to be true, and suppose that no cause of anything can be discovered or assigned unless and until the state of the whole universe is known ; then it is clear that no cause of anything ever has been discovered or ever can be discovered, for we can never know the state of the whole universe. But in fact many causes of many things are known, and more are being discovered every day. I know, for instance, that pushing a trolley is a cause of the movement of that trolley. I know that reading such disquisitions as Mr. Welton's, Professor Pearson's, and Mr. Bertrand Russell's, are among the causes of the estimate I have formed of philosophers. Mr. Bertrand Russell may be a great mathematician, Professor Pearson a great statistician, and Mr. Welton a great authority on education ; but there is a certain proverb about the cobbler and his last that I would commend to the notice of all three. It may be that I must determine the state of this earth, and of everything upon it, in it, and around it ; of all its continents, seas, rivers, lakes, and islands ; of all its minerals, from the coal to the diamond ; of all its vegetables, from the bacillus to the oak and the orchid ; of all its animals, from the spirochæte to the whale ; of all its human inhabitants, from the Bushman to Mr. Russell himself ; and beyond this, of all the solar system, with its planets, planetary streams, satellites, and comets ; of all the stars which we call fixed, with their temperatures, positions, sizes, movements, and chemical composition—it may be that I must know all these things with accuracy before I can

discover what it is that is tickling my nose ; but for my own part I don't believe it. In fact, I do not know all these things, I know only some of them, and I have already discovered the cause. No doubt Mr. Bertrand Russell knows best, but my own private belief is that though mathematics cannot err, mathematicians can.

The last view of causation that I shall examine is Dr. McTaggart's, which I select because it is the latest to be published, having appeared only last July. Like Mr. Russell, he calls it causality, which, to be sure, is a more imposing term ; but sometimes he fails to maintain the philosophical nomenclature, and drops back into common causation. For thorough mystification, and for the most extreme departure from plain meaning and common sense, Dr. McTaggart runs Mr. Bertrand Russell very hard. According to Dr. McTaggart, 'causation is a relation of implication between existent realities—or to put it more precisely, between existent substances.' This does not on the face of it afford us much help in understanding what causation is, but unlike most philosophers, Dr. McTaggart defines his terms, and for this one cannot be sufficiently grateful to him, not only on general grounds, but also for the surprising meanings that he shows lurk unsuspected in the most ordinary terms. A substance, for instance, according to Dr. McTaggart, is anything that can have qualities and relations ; so that, for instance, the battle of Waterloo and a flash of lightning are substances in the McTaggartian sense. This is a bit startling, but definitions are so rare in philosophy that we must be thankful for any we can get, even if they leave us more mystified than before. The battle of Waterloo is presumably not only a substance but also an existing substance in the McTaggartian world, though to the rest of us it ceased to exist a hundred years ago. Causation, then, is a relation of implication between such existing substances as the battle of Waterloo and a flash of lightning ; but what is a relation of implication ? Here again Dr. McTaggart comes to the rescue with a definition. A relation of implication is a relation between two propositions, P and Q, such that P implies Q, when, if I know P to be true, I am justified by that alone in asserting that Q is true, and, if I know Q to be false, I am justified by that alone in asserting P to be false.

So far, so good, but still we are a long way from attaining a clear idea of causation ; but Dr. McTaggart is not done yet.

'Strictly speaking,' he says, 'implication is a relation between propositions or truths [is a proposition, then, necessarily true?] and not between events. But it is convenient to extend our use of it, so as to say that if one proposition implies another, then the event asserted in the first implies the event asserted in the second [but how if neither of them asserts an event?]. It is in this sense that the cause implies the effect'—causes it, in fact. The jump from propositions to events is a bit startling to those who are not accustomed to the proper meaning of realities and substances, but interpreting these expressions to the best of my ability, I gather that when we say the cause implies the effect, we mean that if the cause is true the effect is true, and if the effect is false the cause is false. But what on earth is the meaning of a cause or an effect being true or false? It does not appear that by a true cause Dr. McTaggart means the *causa vera* of the Schools, but what he does mean I cannot conjecture; and supposing this difficulty to be cleared up, what is the meaning of a false effect? Is it an effect that never happens? or is it an effect that is wrongly attributed to a certain cause? or is it something else? It is to be regretted that Dr. McTaggart has not supplemented his definitions with others, explaining the meaning of these terms. In this difficulty the only practicable expedient is to clothe the expression in circumstances—to apply the general rule to an individual case.

I take, therefore, two propositions, *Brutus killed Cæsar*, and *Brutus and Cæsar were contemporaries*, which stand in a relation of implication; for if P, or Brutus killed Cæsar, is true, then we are justified by that alone in asserting the truth of Q, that they were contemporaries; and if Q, or Brutus and Cæsar were contemporaries, is false, then we are justified by that alone in asserting the falsity of P, that Brutus killed Cæsar. This specimen fulfils all Dr. McTaggart's conditions. The relation is undoubtedly a relation of implication; and the killing of Cæsar by Brutus is a substance, for it can have qualities, such as treachery, unexpectedness, rapidity, and so forth. It does not seem to me to be an existing substance, it is true, but it is as much an existing substance as the battle of Waterloo. The contemporaneousness of Brutus and Cæsar is a relation, and therefore this also is a substance, and to the same extent as the other is an existing substance. All the conditions being

satisfied, we may therefore predicate a relation of causation between these two existing substances; but now our difficulties begin, for I cannot understand whether the fact that Brutus killed Cæsar caused them to live at the same time, or whether the fact that they were contemporaries caused Brutus to kill Cæsar. If the latter, why did not all his other contemporaries kill Cæsar? and why did not Cæsar kill Brutus? If the former, what caused Brutus and Cæsar to have so many other contemporaries? I have puzzled over these problems till my brain is almost turned, and I am no nearer a solution, and am obliged to give them up. I doubt whether anyone but Dr. McTaggart could solve them; and a method which is useless in the hands of everyone but its inventor is never likely to become popular.

Dr. McTaggart arrives at certain other conclusions that are interesting. He decides that there is no reason to believe 'that a cause exerts an activity or an effect.' What is meant by a cause exerting an effect I do not know, and another definition would be useful here; but if Dr. McTaggart means that a cause does not produce an effect, then I respectfully submit that it is not a cause. Moreover, if a cause does not exert an activity, it is only because it *is* an activity, or more properly an action. Cause and activity can no more be divorced than heat and motion, or solidity and resistance. Dr. McTaggart decides that cause and effect are not identical, a discovery that will not, I think, startle anyone but Mr. Welton; that the effect is not necessarily subsequent to the cause, and, indeed, he is not quite sure that the effect may not sometimes come first, and the cause follow after it; and at last he declares, in despair it seems to me, that though cause and effect are not identical, yet there is no means of knowing which is which, or at any rate, there is no clear distinction between them; and therefore, though we may speak of causal relations as existing between two terms, yet we ought not to speak of one of those terms as cause, and of the other as effect. I think we may legitimately complain that Dr. McTaggart does not tell us what we ought to call them. Ought we to call them both X, or the one X and the other Y? Ought we to call the one beef, and the other Yorkshire pudding? Or ought we to call the one petticoat and the other trousers? Dr. McTaggart gives us no guidance, and the reader must choose for himself.

The lecture in which Dr. McTaggart expounded these views was delivered at Newnham College, presumably to an audience of young women, and I trust he developed to them his views of the impropriety of naming the related terms when describing relations. He convinced them, I trust, that it is convenient to speak of the relation of marriage, but inconvenient (and perhaps improper), to speak of bride and bridegroom, or of husband and wife ; that it is convenient to speak of parentage, but not of parents or of children ; that it is convenient to speak of the relation of cousinhood, but that they should never allow themselves to use such expressions as Harry or Mary.

In concluding this survey of certain theories of causation, I beg to assure the reader that they are stated with accuracy, in the *ipsissima verba* of their authors. They are not garbled, altered, or modified in any way. Everything material has been stated, and nothing has been mis-stated. They are not the theories of Laputa, nor are they the ravings of Bedlam. They are not jokes, nor are they intended for caricatures. They are the serious attempts of philosophers of position and repute to solve a simple problem that every ploughman and artizan, though he may not be able to put his solution into words, has solved in practice for ages. Carlyle, in his genial way, characterised a certain philosophy as pig-philosophy. I should qualify the philosophers' treatment of causation with the name of another domestic animal, unlike a pig in that its hoofs are not cloven, nor its long ears drooping.

My view is that when we common people who are not philosophers speak of causation, and, as we do in spite of Dr. McTaggart's warning, of cause and of effect, we attach to these words very positive and downright meanings. We feel and know that in seeking for causes, in noting effects, in trying to identify causation, endeavours that occupy the greater part of our lives, we are not pursuing an *ignis fatuus*, but we are doing that without which it is impossible for men to live profitably, nay, it is impossible for them to live at all. If we have no very clear notion of what we mean by cause, effect, and causation, this want of precision, which is largely due to the fog in which they have been enveloped by philosophers, does not interfere with our practical pursuit of them. If the plain man, immersed in practical affairs, cannot precisely define what he means by these terms, neither can he define precisely the

meaning of capital, of labour, of rent, of interest, of life, of death, of disease, or of hundreds of other terms that he uses in his daily work, and that represent things of the utmost moment to his welfare, his happiness, and his life. But because he cannot define them, is he therefore to say that the things they stand for have no existence? that they are empty words, that represent nothing outside his own misguided imagination? This is the conclusion to which philosophers are driven by their inability to define cause and effect. On the same ground, and for the same reason, they should deny the existence of life and death. This is the result of living in the moon, and ignoring all the efforts of the toiling millions of mankind. The only way to discover the meaning of cause and effect is—to find out what men mean by them; and we shall not do this by word-spinning; by pretending a difference between connection and conjunction; by denying the existence of force; by contradicting ourselves twenty times over; by calling sequence simultaneity, and simultaneity identity; by posing oracularly as embodied science; by ingenious puzzles about the divisibility or indivisibility of time; or by defining that which is easy to understand by that which is impossible to understand. No. To find the meaning of cause and effect, and of cognate terms, we must come out of the moon, and go, not merely into the laboratory and the observatory, but into the home, the kitchen, the workshop, the factory, the garden, the field, and all the busy haunts in which men and women are all day long seeking causes, studying effects, and watching the course of causation.

Summary.

Hume's denial that force or power exists, and that there is any connection between cause and effect, is based on faulty reasoning, and in the light of modern psychology cannot be sustained. He himself so defines causation as to assert a necessary connection between cause and effect.

Mill's treatment of the subject is confused, wavering and contradictory. He defines cause and causation many times over, and never adheres to one definition. Generally, he follows Hume in identifying causation with invariable antecedence and sequence, but he does not adhere to this, nor to any, opinion.

Mr. Welton denies that antecedence or sequence, or any time

element, enters into causation. In place of the time element he asserts that contiguity in space is necessary to causation. From this he argues that cause and effect are not in sequence, but are simultaneous; and at length decides that they are identical. His reasoning is inconsequent, and his conclusions are opposed to universal experience and to common sense.

Professor Pearson follows Hume and Mill in denying any enforcement of the effect by the cause, and in regarding causation as invariable sequence. He also denies the occurrence of causation, and says it is meaningless; nevertheless, he quotes with approval the law of causation, and asserts that some sequences are inevitable. His treatment of the subject is as self-contradictory as that of Hume and Mill.

Mr. Bertrand Russell, like Prof. Pearson, denies the existence of causation, and like him formulates a law of causation, which is not a law of causation. It is so expressed as to require, before we can determine what Mr. Russell calls the cause, which is in fact not the cause, of anything, a knowledge of the whole universe.

Dr. McTaggart defines causation as a relation of implication between existing substances. Application of the definition to a test case shows that the definition is absurd, and affords no guidance in practice.*

In conclusion, it is suggested that the inability of philosophers to define causation in consistent and intelligible terms argues, not that causation is imaginary, but that philosophers are incompetent.

* Nevertheless, a leader of the Germanised school of philosophers refers to Dr. McTaggart's essay in the following terms: "The greater part of what he says possesses, as one would expect from him, an almost convincing lucidity and vraisemblance." Lucidity and vraisemblance! Well, well! And convincing! Heavens!

CHAPTER II.

EFFECT, REASON, RESULT, CAUSE.

THE subject we are about to examine is the relation of causation, and a relation comprises three things—the two terms, and the link that relates them, and unites them in a relation. The link is usually called a relation, which thus becomes an ambiguous term, standing both for the link, and for the triple whole of term—link—term. I have therefore, in my *New Logic*, called the link the ratio. Mr. Bertrand Russell, in a recent publication, calls it the relating relation, which is possibly a better term, but is at any rate longer. The terms of the relation we are about to examine are Cause and Effect, and the ratio or link which binds them together and unites them in a relation is Causation or Effectuation, according to the point of view from which we regard it. It will be convenient to begin our examination with the terms, and we may select for this purpose either term we please. I shall begin with effect.

The first thing, then, to settle is what is an effect? What do we mean, what do we think of, what have we in our minds, when we use the term effect? I think it is indisputable that the idea of effect is inseparably connected with the idea of change. Changes may be contemplated in and by themselves, as changes and no more; and this is how we contemplate changes to which we are well accustomed, such as the change from day to night, and from night to day, the change from rain to sunshine, and from sunshine to rain, the changes in the face of the sky, the growth of herbage, the change from heat to cold and from cold to heat, and all the customary changes of Nature. These changes we may, and usually do, contemplate merely as changes, without feeling any compulsion or need to regard them as effects also, or to look behind them for their causes. But then these changes are, in a sense, not changes *to us*. They are parts of a routine, a changing routine, but a routine whose changes are customary, and part of the routine; a routine that, as a routine, does not change, or changes but little. In such changes the change to us is minimised, and the greater change would be if

the regular routine should cease to change. The changes that are changes to us, that impress us as changes, are not the regular customary changes of the routine, but the breaks in the routine. But any change that impresses us as change, any break in our customary routine of changes, especially if it is rapid, and more especially if it is sudden, carries the mind irresistibly to the notion of cause, and impresses us as an effect. In such cases change is identified with effect, or, if not identified, is inevitably associated with effect. It is true that in contemplation we can separate them. We can contemplate a change either as change pure and simple, or as effect; but though separable in contemplation, in occurrence they are inseparable. Just so we may contemplate gold without taking into account its specific gravity, or we may contemplate it with reference to its specific gravity; but whether we choose so to contemplate it or not, we know that its specific gravity is inseparable from it. Whether we regard a change as simply a change, or whether we regard it also as an effect, or whether we regard it primarily as an effect, depends on the way we choose to contemplate it. How close is the association between change and effect is conspicuously displayed in the case of an unaccustomed noise. When we hear a noise, especially a sudden and loud noise, to which we are unaccustomed, the natural and inevitable reaction is What's that! And in putting to ourselves this question, we do not mean, as the form of the question seems to imply, What is the nature of that noise? That we already know. Our meaning is What is the cause of that noise? Instantly and inevitably the mind passes from change to cause, and regards the change as an effect; and so it is with every change to which we are unaccustomed, that is, with every change that impresses us as change.

On the other hand, we do not, except in special cases that will be examined directly—we do not seek for a cause for things remaining unchanged, or regard want of change as an effect. If, upon waking in the morning, or on entering a room, we find the position of the furniture and all the other objects the same as when we last saw them, we do not look upon their unchanged position as the effect of anything, or seek for a cause for it. When we come home after an absence, and find the house, the trees, the bushes, the lake, and the distant hills, all as we left them, we do not associate this want of change

with causation, nor do we regard it as an effect. It needs no accounting for, no attribution of cause.

This is the general rule. Every change may be contemplated as an effect, and will be so contemplated in proportion as it is unusual, for unusualness is what logicians would call the essence of change; that is to say, it is the element in change that attracts our attention, and impresses us. It is what to us constitutes change. A change that happens continually soon ceases to be contemplated as change. It becomes to us a continuity, and the change to us is when it stops—when the clack of the mill ceases, when the roar of the streets subsides, when the train arrives at the terminus. But if we choose so to regard it, every change is an effect.

It does not follow, however, that every effect is a change. As a rule, no cause is assumed for the want of change, or for things remaining the same; but this rule has very important exceptions, constituted by the circumstances we have just considered. There are cases in which we do assume a cause for the retention by a thing of its state unchanging, cases in which we regard the absence of change as an effect. There are two such cases.

When a change is customary, and yet does not take place, we assume that the absence of change is the effect of some cause. The weather, for instance, in this country changes so frequently, and change in the weather is become so much a part of our customary routine, that when a change in the weather takes place, we forget to regard it as an effect; but should the weather remain uninterruptedly stormy, or dry, or wet, for six months together, we should at length be driven to assume a cause for this want of change, for the want of change would be itself a change in the routine to which we are accustomed.

The second case is when we know of forces in operation tending to produce a change which yet does not take place. In such a case, if our attention is called to the operation of such forces, we inevitably assume a counter-cause for things remaining unchanged, and regard this want of change, or unchange, as an effect. If we pull the handle of a drawer, and the drawer yields and opens, we regard the change in the position of the drawer as the effect of the pull; but if we make no attempt to open the drawer, we do not regard its remaining closed as the

effect of anything. As there is no change, and nothing tending to produce change, there is no effect. But if we pull the drawer and it does not move, then the want of change, in circumstances tending to produce change, at once becomes an effect, and carries the mind irresistibly to the necessity of a cause. When the mercury in a cup remains level, we do not regard the maintenance of the level as an effect, for it is no change from the customary behaviour of mercury; but when the mercury in a Torricellian tube remains high above the level of that in the cup, we do at once assume that this is the effect of some cause; for the unchanging state, or briefly the unchange, is maintained in spite of a cause—the weight of the mercury—that we know is tending to change it.

We are driven by these considerations to regard change as a necessary element in our concept of effect, and if we first formulate the definition that

An Unchange is the maintenance of an unchanging state in spite of forces in operation tending to change it,

Then we may formulate our provisional definition of effect in the following terms:

An Effect is a change or an unchange.

REASON.

Between these two kinds of effect there is a clear difference, which is easily distinguished, which is generally felt, and which is, in fact, embodied in language; for while we always call that which produces a change the Cause of the change, we usually do not give this title to that which opposes a change. This latter we usually call a *Reason*. The variations in the height of the barometer are *caused* by variations in the pressure of the air; but the constant pressure of the air is the *reason* why the mercury does not sink to the level of the cup. The pull we exert on the handle of the drawer is the *cause* of the drawer opening: the drawer being locked is the *reason* it does not yield to the pull. It would be quite inappropriate to say that the changes in the weather are due to some reasons: but it would be quite appropriate to say there must be some reason why the weather does not change. It would seem that the full force of effectuation is felt only when the effect is change, and that when it is unchange the effectuation is felt to be attenuated and diminished; so that we may add to our definitions the following:

The cause of an unchange is called a Reason.

The definition of an effect as a change or unchange is avowedly provisional, and needs to be completed. As already explained, the nature of a thing, as it appears to us, depends on the way in which we contemplate it. We may, if we please, contemplate a change or an unchange in and by itself, merely as change or unchange, without contemplating it as an effect. In order to constitute it an effect, a change or unchange must be contemplated from a special point of view, that is to say, with reference to its causation. To become an effect it must be associated in our minds with causation and a cause ; but as we have not yet arrived at any definition of these terms, it would not be legitimate to use them in defining effect. Still, we may legitimately go as far as this : we need not, and do not, always contemplate a change as an effect, but when we do regard it as an effect we always contemplate it in relation with some antecedent action on the thing changed. We need not regard an unchange as an effect, but if we do so contemplate it, we contemplate it in relation with some action that maintains the thing unchanged. We may therefore develop our definition into this :

An Effect is a change or an unchange connected with an action on the thing changed or unchanged.

Still the definition is not complete. A cup may fall and break. The fall of the cup is a change produced on the cup, and is an effect. The impact of the cup on the floor is an action on the cup, and is connected with the fall ; but the impact of the floor on the cup is not the cause of the fall ; and why not ? Evidently because it succeeds the fall. The cause of a change must be sought in some action that precedes the change ; it is no use looking among the consequents for the cause. Most writers on causation have been able to appreciate this, and since the cause of a change must always precede the change, they have muddled up causation with antecedence, and declare that they are the same thing. They are not. Antecedence often goes with causation, but there are many cases of causation in which the cause does not precede the effect ; and there are many antecedents of a change that are not its causes ; and to identify causation with antecedence is a gross blunder, whether the antecedence is invariable or not.

When the mercury in a Torricellian tube remains high above the level of that in the cup, the pressure of the air, which is the

action that maintains the unchange, does not precede the maintenance of the unchange, which is the effect: it is continuous with the unchange. It is contemporaneous with it. When the action of the engine on the axles maintains the motion of the motor car or the locomotive engine in spite of the forces in action tending to arrest the motion, this action does not precede the motion of the car or of the engine, but accompanies it. The tension of a string that sustains a weight, and that is the cause that prevents the weight from falling, does not precede the suspension of the weight: it accompanies it. It begins at the instant of suspension, it lasts while the suspension continues, and it ceases the instant the string is cut and the weight falls. It is true that the drawer may be locked long before and long after it is pulled upon to open it; but it is not the drawer being locked that is the cause of the unchange: it is the resistance of the tongue of the lock; and this resistance begins and ends with the pull upon the drawer.

A time element, or time relation, of one kind or the other is therefore a necessary and indispensable element in the definition of effect, but the time relation is manifestly not the same in the two kinds of effect, and therefore effect cannot be defined in a single expression. The complete definition of effect must run something as follows:—

An Effect is a change connected with a preceding action, or an unchange connected with an accompanying action, on the thing changed or unchanged.

RESULT.

‘Some phenomena,’ says Mill, ‘are in their own nature permanent; having begun to exist, they would exist for ever unless some cause intervened having a tendency to alter or destroy them . . . no object at rest alters its position without the intervention of some conditions extraneous to itself: and when once in motion, no object returns to a state of rest . . . unless some new external conditions are superinduced. It, therefore, perpetually happens that a temporary cause gives rise to a permanent effect. The contact of iron with moist air for a few hours, produces a rust which may endure for centuries; or a projectile force which launches a cannon ball into space, produces a motion which would continue for ever unless some force counteracted it.’

As usual, Mill founds a general statement upon the *enumeratio simplex*, without taking into consideration the *instantia contradictoria*. It is not true of living animals that they never alter their position without the intervention of some condition extraneous to themselves: the mere internal accumulation of energy is enough. But passing that, and making the necessary qualification, Mill's limitation of the assertion to some phenomena, as if it were not true of all, is utterly unjustifiable. If the first Law of Motion is true, if Mill's own Law of Universal Causation is true, that no event happens without a cause, it is difficult to see how any change can take place in any 'phenomenon' whatever without a cause; and it seems clear that not some phenomena only, but all phenomena whatever, are in their nature permanent, and having begun to exist will exist for ever, unless some cause intervenes to alter them. Mill adduces these instances as instances of permanent effects; but here he is evidently using the word effect, which he never defines except as an invariable consequent, in a popular sense, and in a sense which even popular usage does not always sanction. According to my definition, a permanent state is not an effect unless it is an unchange; and none of these is an unchange. Once at rest, a body needs no cause to keep it at rest, unless there is some action on it tending to move it; and without such action, its remaining at rest is neither a change nor an unchange, and is therefore not an effect. A body at rest needs a cause to set it in motion, and the setting in motion, the change from rest to motion, is an effect: but once in motion, its continuing in motion is not an effect. When iron rusts, the rusting is an effect, for it is a change from metallic iron to oxide; but once it is rusty, there is no cause in action tending to change it back again, and therefore its remaining rusty is not an effect. In none of these cases does the effect continue. None of them is a permanent effect. What Mill means by a permanent effect is that iron once rusted does not change back again, and that a man once killed does not come back to life again. It is a manifest misnomer to say that if an effect is not reversed, the non-reversal is an effect. It is true that in common speech it is a frequent practice, but by no means an invariable practice, to say that an effect continues, even when the effect is a change, and to speak of the state of death and the state of rust as effects; but these are not accurate expressions, are eschewed by accurate

speakers, and are utterly unpardonable in philosophical writing. What persists when a body is brought to rest or set in motion, when iron is rusted, or a man is killed, is not the effect, not the change, but the changed state—the new state that has resulted from the change. A change implies a state from which and a state to which the change is made, and the state brought about by the change is a very different thing from the change itself, which alone is the effect. The changed state is not the effect, it is the *result*, and thus we arrive at a sixth definition:—

A Result is the changed state of a thing on which an effect has been produced.

CAUSE.

The definition of effect, as a change or unchange connected with an action, points straight to the nature of cause. I do not think it is possible to imagine any change or unchange that is not produced by the action of some agent. Of course, it may be said that things may exist or occur, although we cannot imagine them; but we are not here dealing with transcendental possibilities. We are dealing with events in this world as we know them in experience, and our experience is such that we can no more imagine change to be produced or prevented without action upon the thing changed, than we can imagine resistance without extension, force without matter, or solid without surface. In each case the one presupposes the other. The only consideration that can be plausibly advanced against this view is, I think, that we regard some changes as spontaneous. But by a spontaneous change we do not mean a change produced without action on the changing thing, we mean a change due to the action of the changing thing itself, as contrasted with change due to the action upon it of something outside the changing thing.

The only formal repudiation of this doctrine is that of Hume, which has already been examined. Hume taught that there is no such thing as force or power, which I here call action; that it exists only in our imagination; that the notion we have of it rests upon no evidence, and corresponds with nothing in the external world. His reason for this opinion was that we gain our notion of force or power not from any single individual experience, but as a generalisation from many experiences; and he thought that in this it contrasted with

our notions of resistance, extension, and motion. We now know that in this he was mistaken. All such notions are generalisations from many experiences, and the notion of force or power is not singular in this respect, does not differ in this respect from other primitives, nor is it invalidated, as a true representation of externals, by being a generalisation.

But all Hume's discussion of its origin is beside the question. Whatever its origin, it is indisputable that we have this notion of force, or power, or action, and that we regard it as having a real existence in the world outside of us; and the crucial test is this: that we act upon the assumption that it does exist, and that the consistent action, on that assumption, of the whole human race has never brought anyone up against experience that contradicts the assumption. This is the ultimate and unimpugnable test of empirical truth. This test being satisfied, it is quite out of our power to doubt that the assumption is true. We may in words express a doubt, or even a denial, for language was acquired by man in order that he might deny his beliefs; but in fact we do not and cannot doubt it. It is quite possible to deny in words that matter exists, that there is an external world to be appreciated, and that we have minds to appreciate it with; it is quite possible to deny that things that are equal to the same thing are equal to one another; but the test of belief is action; and when we come to act, we act in conformity with the beliefs which we deny, and prove by so doing that our denial is a sham and an imposture—an imposture that does not impose even upon ourselves.

We may take, therefore, as our first provisional definition of a cause:

A Cause is an action.

Though we may speak of change and of unchange in isolation and abstraction from other things, yet in thinking of change or unchange it is impossible to expel from our minds the notion of a thing that changes, or that is prevented from changing. Change and prevention of change alike imply a changeable thing. That which produces change in a thing cannot be thought of otherwise than as an action on that thing either from without or from within. That which keeps a thing unchanged in spite of something that is trying or tending to change it, cannot be thought of otherwise than as an action on

or by the unchanging thing. Hence, by a cause not only do we always mean an action, but we always mean an action on a thing. It is quite possible to entertain the notion of action without taking into account anything acted on, as when we contemplate the rotary action of the arms of a windmill; but when we so contemplate an action we exclude from our minds the notion of cause. Cause always carries with it the notion, not merely of action, but of the transference of action from the acting agent to the thing acted on, or the initiation of action by the changing or unchanging thing; and the notion of cause is not complete unless this transference or initiation of action is taken into account. Hence we arrive at a further stage in our provisional definition of cause:

A Cause is an action upon a thing.

But not yet is our notion of cause complete. We may contemplate an action upon a thing in and by itself, without letting our contemplation run forward to the consequent change or prevention of change in the thing acted on; and unless we do thus extend our contemplation, our notion of cause is incomplete and unformed. When we contemplate the action of a breeze blowing upon a rock, we do not, or need not, regard this action as the cause of any change or unchange in the thing acted on. To complete our concept of cause, we must add to the provisional definition a reference to the change or unchange that is connected with the action on the thing, and develop our definition of cause as follows:

A Cause is an action connected with a change or unchange in the thing acted on.

The pressure of steam in a boiler is an action on the boiler: the rise in temperature of the boiler is a change in the boiler—the thing acted on—and is connected with the steam pressure; but the pressure of steam is not the cause of the rise in the temperature of the boiler: it is the other way about. The pressure of the air is an action on the locomotive engine, and it is connected with the unchange—the running of the locomotive—for it increases with the speed; but it is not the cause of the unchange. Evidently some further qualification is required in the definition. Why cannot the pressure of steam in the boiler be the cause of the rise in temperature of the boiler? Manifestly because the steam-pressure does not precede, but follows the rise of temperature. Why is not the

pressure of the air the cause of the running of the locomotive ? Manifestly because, the running being an unchange, the pressure of the air is not contemporaneous with it. The pressure exerted its action before the running began, and continued after the running had ceased. In order, therefore, to accommodate our definition to these considerations we must modify it as follows :

A Cause is an action connected with a following change or a contemporaneous unchange in the thing acted on.

There are some usages that conflict with this doctrine. One of these is that we often give the name of cause to that which is not an action. We say the cause of the stoppage of a motor car is a broken sparking plug, a leak in the water circulation, grease in the commutator, dirt in the carburettor, and so forth. Similarly, we say the cause of a man's death is failure of his heart to act ; the cause of the stoppage of the machinery is the stoppage of the engine ; the cause of the stoppage of the engine is the fire going out ; and so forth. In each the cause is not an action, but is the cessation of action, or the agent which produces cessation of action ; and in every such case, the change, which is the effect, is the cessation of an unchange. Now an unchange is the maintenance of a continuous state in spite of the operation of forces tending to change it : and that which we call the cause of the cessation of the unchange, or the destruction of this continuous state, is not an actual cause, not an action, but the removal or cessation of the cause of the unchange. In each of the foregoing cases, what we call a cause is really the removal or cessation of a cause. The unchanged motion of the car is caused by the action of the sparking plug, of the water circulation, of the commutator, of the carburettor ; arrest any of these actions, and the running of the car ceases, and ceases by the operation of causes—friction, etc.—that were all along tending to stop it, and are now permitted, by the cessation of the causes of the unchange, to become effectual. Similarly, the life of man is an unchange, maintained by the action of the heart in spite of causes in action tending constantly to bring life to an end. Cessation of the heart's action does not kill the man, but allows him to die. The movement of the machinery is an unchange, maintained, in spite of causes tending to end it, by the action of the engine. The stoppage of the engine does not stop the machinery, but allows it to be brought to rest by friction and other resistances.

It is scarcely consonant with our notion of cause to call the cessation of action a cause, but, undoubtedly, in individual cases that occur in experience, such as those that have been instanced above, we do in fact regard the cessation of action as a cause, although a stricter logic would compel us to look upon it as the removal of a cause. If the latter view is to prevail, the last definition will stand as the final definition of Cause, but if we are to fall in with current usage, our definition will run :

A Cause is an action, or cessation of action, connected with a sequent change or accompanying unchange in the thing acted on.

Another usage that conflicts with both of these definitions is that of Mill and the logicians, as well as of other writers who should know better, in speaking of things which are not actions nor cessations of action as causes. It is fruitless to try to fix responsibility for the practice, but I am afraid that ultimately it might be traced to writers on Causation. A flagrant example is afforded by writers on medicine, who still divide the causes of disease into predisposing causes and exciting causes. Among the predisposing causes it is usual to enumerate the age and sex of the patient, the climate and locality of his residence, his occupation, and so forth ; and none of these is an action, nor is any of them a cessation of an action. Occupation is indeed action, but it is not action upon the thing changed—upon the patient. It is action by the patient, a very different thing. It is evident that in calling these passive states causes of disease, we are using the word cause in a very strained and unnatural sense, and this is often acknowledged even by medical writers themselves. Yet it is beyond doubt that these states have an influence upon the effect. Certain diseases are limited to a certain age ; others are limited to one sex ; others are found to attack those only who live in certain localities or pursue certain occupations ; and yet there is a felt and acknowledged incongruity in calling them causes. No one has ever specified what it is that arouses this feeling of incongruity, but I think there can be no doubt that it arises from the recognition that they are neither actions nor cessations of action, and that it is only to actions, and perhaps to cessations of action, that the term cause can be properly applied. The connection that these passive circumstances have with the effect, a connection which is undoubted, and cannot be questioned for a moment,

is that they are *Conditions* of the effect; and this leads us to inquire into the meaning of Condition, and to ascertain in what it differs from Cause.

Summary.

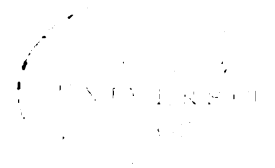
This Chapter is an examination of the relation of which the two terms are Cause and Effect, and the ratio, or relating relation, is Causation.

Effect is inseparably connected with the idea of change, and every effect is that which impresses us as change or as the prevention of change. The latter is called an unchange. By successive approximations we reach the definition that an Effect is a change connected with a preceding action, or an unchange connected with an accompanying action, on a thing.

The cause of an unchange is often called a Reason.

The changed state that is left when an effect has been produced is called a Result.

By successive approximations we reach the definition that a Cause is an action (or cessation of action) connected with a sequent change or accompanying unchange of the thing acted on.



CHAPTER III.

CONDITION.

WHILE it is generally understood that a cause and a condition are different things, and stand in different relations to the effect, yet even in common speech and in practice they are often confused, and writers on causation admit no distinction whatever between them. Mill was the worst offender in this respect, and his evil example has corrupted all subsequent writers. I do not know of any writer on the subject who formally distinguishes between cause and condition, though all writers use both terms; but they jumble them up together, sometimes using them interchangeably, and sometimes assuming a difference without ever distinguishing them.

Whenever a distinction is made in common speech, we may be pretty sure that it represents and indicates a distinction in thought which the common user feels and appreciates, though he is usually unable to formulate and define it. Not one person in a thousand makes a mistake in the use of the phrases 'I did it' and 'I have done it,' and not one person in a thousand could formulate and explain the precise difference in the meanings of the two. Whenever two different words or phrases are used to express nearly the same thought, it will always be found that they never express quite the same thought. It is, in fact, impossible to keep two commonly used words in the same language synonymous. They soon begin to take on different meanings and to be used on different occasions, and gradually the meanings diverge more and more. A familiar instance is in the different meanings that now attach to large, big, great, and gross. In the face of such common usage, the proper attitude of a careful student of language and thought is not to assume a haughty superiority to the commonalty who have made the distinction; not to assume, as Mill does, that it is the mere confusion of ignorance and illiteracy, pretending a difference where no distinction exists; but to examine, probe, penetrate, and realise the thought that underlies the practice, to discover the difference, and to clothe it in an appropriate definition. Cotton stuffs are often confounded with woollen

stuffs, to the disadvantage of the purchaser; but not on that account ought the expert to persuade the purchaser that there is no difference between cotton and woollen, and that he has been all his life calling one thing by two names. A sure, though not a clear, discernment has convinced him that there is a difference, though he cannot say in what the difference consists. A helpful guide would teach him how they are to be distinguished. Mill, however, and every subsequent logician, finding that the populace makes a distinction between cause and condition, but is not very clear as to the nature of the distinction, seek, not to find and formulate the difference between them, but to persuade us that no difference exists.

That Mill did dimly, and in his fumbling manner, feel, rather than recognise, that there is a difference between cause and condition appears from his treatment of them. He says 'It is very common to single out one only of the antecedents under the denomination of Cause, calling the others merely Conditions. . . . The real Cause is the whole of these antecedents: and we have, philosophically speaking, no right to give the name of cause to one of them, exclusively of the others.' This, it may be observed, is his sixth definition of cause, different from all the previous five. 'What, in the case we have supposed [that of eating a particular dish and dying in consequence], disguises the correctness of the expression, is this: that the various conditions, except the single one of eating the food, were not *events*, but *states*, possessing more or less of permanency.' Supposing this were the correct distinction between causes and conditions, surely it is a distinction worth making, and entitles them to separate treatment. Again, he says 'There is, no doubt a tendency to associate the idea of causation with the proximate antecedent *event* rather than with any of the antecedent *states*.' If this is so, the obvious duty of an investigator is to discover the reason and meaning of this tendency, and this Mill seems to feel, for he gives a reason, a very inconclusive reason, which explains nothing, but still he gives one, 'the reason being that the event not only exists, but begins to exist immediately previous; while the other conditions may have pre-existed for a considerable time.' 'But though we may think proper to give the name of cause to that one condition, the fulfilment of which completes the tale, and brings about the effect without further

delay; this condition has really no closer relation to the effect than any of the other conditions has. All the conditions were equally indispensable to the production of the consequent; and the statement of the cause is incomplete unless in some shape or other we introduce them all.' 'The cause, then, philosophically speaking, is the sum total of the conditions.' Thus, after fluttering on the edge of finding a distinction between cause and condition, he makes up his mind that they are identical, and comes down with a flop on the wrong side. It would be difficult to find an argument more perverse, and the statements by which it is supported are nearly all of them erroneous.

If, as Mill says, we think proper to give the name of cause to one antecedent rather than to the rest, is it not manifest that we do so because we recognise a difference between this antecedent and the rest? Why else should we single it out for different treatment? The bestowal of a separate and different name is *primâ facie* evidence that a difference is felt to exist; and Mill, though he does not discover the true difference, yet does discover a difference, and then treats it as if it were non-existent. If a glass bottle is broken by the blow of a stick, is it true to say that the blow of the stick has no closer relation to the breaking of the bottle than the existence of the stick, or the muscles of the arm of the man who struck the blow? And is the 'statement of the cause' of the fracture of the bottle incomplete unless in some shape or other we introduce the growth of the tree from which the stick was cut, and the birth of the man who struck the blow? for they were 'equally indispensable to the production of the consequent.' 'Nothing,' says Mill, 'can better show the absence of any ground for the distinction between the cause of a phenomenon and its condition, than the capricious manner in which we select from among the conditions that which we choose to denominate the cause.' Never was assertion more unwarrantable. As well might a man who is colour blind assert that nothing can better show the absence of any ground for the distinction between red and yellow than the capricious manner in which we select from the yellows that which we choose to denominate red. The distinction is there right enough. Between cause and condition there is a distinction that is perfectly clear and very useful, and that is none the

less a clear and useful distinction because it is not always observed; because we do not always need to observe it; or because Mill and his successors are too blind to observe it.

Mill says we have a 'tendency' to associate the idea of causation with antecedent *events* rather than with antecedent *states*. If this were so, it would be a distinction of sufficient importance to warrant us in separating the events (causes) from the states (conditions) and discussing them apart; and though this is not the truth, yet it is an adumbration of the truth. Mill would have been much nearer the mark, though he would not have been within it, if he had said that we associate the idea of effect with events. An event is that which comes out of something else, and an effect is that which comes out of the cause. An event, whatever else it may be, is a change, and as we have seen, an effect is often a change, and is always associated with change. We do not necessarily associate the idea of causation with either events or antecedence, but we may associate it with an event if we contemplate the event as an effect. Nor is it true that we associate the idea of condition with 'states possessing more or less of permanency' merely because they are states and more or less permanent. The state of activity of an engine is a state possessing more or less of permanency, but we do not regard it as a condition of the movement of the train. We regard it as the cause, and rightly so regard it, because it is an action. A cause is an action, and so to regard cause points to the difference between cause and condition, for

A Condition is a passive state.

That is the true distinction between cause and condition. Cause is active: Condition is passive. A cause is an action: a condition is a passive state; not necessarily a permanent state, though as a state it must have some endurance, even if the endurance is but brief. One of the conditions of the discharge of a gun is that the hammer must be at cock. This is a passive state, but it is not a permanent state. It must, however, have some endurance, even though the endurance may be but momentary.

Clearly, however, the definition of a condition as a passive state is not a complete definition with reference to any given case of causation. There are many passive states of many

things quite unconnected with the causation of any given effect. The position of the hammer of a gun at half-cock is a passive state, but it is not a condition of the occultation of Jupiter. To complete the definition of a condition it is necessary to state the connection of the passive state with the causation of the effect. A cause is an action upon a thing, connected with a change or unchange in the thing acted on. A condition is a passive state: of what? Of the thing acted on? It would seem so, for that is the only thing admitting of a condition mentioned in the definition; and many instances can be adduced of conditions which are passive states of the thing acted on. The pulling of the trigger is the cause of the discharge of a gun: the position of the hammer at full cock, and the presence of a cartridge in the barrel, are passive states of the gun, the thing acted on, and satisfy the definition of conditions. The striking of a key on the piano is the cause of the sound of the note. The tension of the wires and the integrity of the mechanism are conditions of the occurrence of the sound: they are passive states of the thing acted on. The application of moisture to the flap of an envelope is a cause of the flap sticking. The presence of a film of gum on the flap is a condition of the flap sticking: it is a passive state necessary to the occurrence of the effect. In this case, we may regard the presence of the film of gum as a state of the envelope itself, or we may regard it, more accurately perhaps, as adjoining and in contact with the envelope, but not a part of the envelope—a passive state, not of the thing acted on, but of something about the thing acted on. In other cases the distinction becomes clear. The cause of a plant's growth is the action of heat on the plant; but the effect on the plant would not be produced but for a condition—the existence of food within reach of the roots of the plant. This condition is a passive state, not of the plant—the thing acted on—but of the soil in which the plant grows, that is, of something about the plant. The cause of the sound of a bell is the action of the tongue on the bell: but this effect would not be produced were it not that the bell is bathed in air, and the existence of the air is a passive state, not of the bell, but of something about the bell. The cause of a plant twining up a support is the action of the plant in rotating about an axis; but the effect would not be produced but for the presence of a support up which the plant could twine. The presence of

the support is a condition of the effect, and is a passive state, not of the plant, the thing which, acting on itself, produces the effect, but of something about the plant. And so we find with many other conditions, that they are passive states, not necessarily of the thing acted on, but of something about that thing. Thus we must modify our first tentative definition of a condition and say

A Condition is a passive state of or about the thing acted on by a cause.

The definition is not yet complete, however. It requires further limitation, for there are many passive states in and about a thing acted on which yet are not conditions of any effect produced by the action. The sun shines upon a wall, and by its action warms the wall; and against the north side of the wall rests a ladder. The presence of the ladder is a passive state about the thing acted on, but it is not a condition of the warming of the wall. A red-haired man takes medicine in a room with a parquet floor and a painted ceiling. The medicine produces its effect, but the red hair, the parquet floor, and the painted ceiling, though they are passive states of and about the thing acted on, are not conditions of the production of this effect. A fall of rain causes a road to be muddy: the dust on the road is a condition of the road becoming muddy, but the presence of a house by the side of the road, though it is a passive state about the thing acted on, is not a condition of the formation of mud. It is clear that a passive state of or about the thing acted on need not be a condition of the effect of that action, and is not a condition unless the existence of the state is necessary to the effect, or material to the effect. If a ship is careened by a gale, we may cause her to right herself by taking in sail. The action of taking in sail is the cause of the ship's righting. But no taking in of sail would cause this movement of the ship unless she were already careened. The careening of the ship is a passive state of the thing upon which the cause acts, and it is necessary to the result. Being a passive state, it is not a cause; and it will be admitted that it would be an absurd misnomer to speak of the careening of the ship as a cause of her righting herself. But the careening is necessary to the righting. It is a condition, an indispensable condition, of her righting herself. Hence we arrive at the following complete definition.

A Condition is a passive state of or about the thing acted on by a cause, and material to the effect.

As an example of the confusion which he attributes to people in general, but which really exists in his own mind, and scarcely anywhere else but in the minds of his followers, Mill gives the following example, which it will pay us to examine in some detail :

‘A stone thrown into water falls to the bottom. What are the conditions of this event? In the first place there must be a stone, and water, and the stone must be thrown into the water, but these suppositions forming part of the enunciation of the phenomenon itself, to include them among the conditions would be a vicious tautology.’ To include them all among the conditions would certainly be erroneous, for the throwing of the stone is not a passive state, but an action; and an action directly concerned, as an action, with the effect. It is therefore not a condition, but a cause. The existence of the stone and of the water are certainly conditions, and are so according to Mill’s own definition, for they are included in the sum total, ‘the whole of the contingencies of every description, which being realised, the consequent invariably follows.’ ‘The next condition is, there must be an earth: and accordingly it is often said that the fall of the stone is caused by the earth; or by a power or property of the earth, or a force exerted by the earth, all of which are roundabout ways of saying that it is caused by the earth; or, lastly, the earth’s attraction; which also is only a technical mode of saying that the earth causes the motion, with the additional peculiarity that the motion is towards the earth, which is not a character of the cause but of the effect.’ It would not be easy to find a better example of Mill’s thorough muddleheadedness. No one with any sense of propriety in the use of words, or with any attention to the meaning of words, could possibly say that the earth was the cause of a stone thrown into water falling to the bottom; but anyone who should say that the fall of the stone was caused by a power of the earth, or by a force exerted by the earth, or by the earth’s attraction, would assert precisely and accurately what the cause is. These are not roundabout ways of saying that the fall is caused by the earth: on the contrary, if anyone were inaccurate enough, and slipshod enough, to speak of the fall being caused by the earth, he would be using an elliptical

expression, taking it for granted that his hearers would understand that he was using 'the earth' for the sake of brevity, instead of the power, or force, or attraction exerted by the earth, or briefly, the action of the earth: in short, that he was speaking of the agent as a cause when he meant the action of the agent, a mistake not infrequent with uneducated people, but one that makes us stare when we find it formally adopted by the authoritative writer on causation.

'Let us now pass to another condition. It is not enough that the earth should exist; the body must be within that distance from it, in which the earth's attraction preponderates over that of any other body.' Well, yes, so it must, for if not, there would be no water for it to sink in. At this rate a book the size of Mill's Logic would be needed to contain a list of all the conditions necessary to the sinking of the stone. We should have to go back to the geological conditions under which the stone was formed: and so back to the primordial nebula that gave rise to the solar system. 'Accordingly we say, and the expression would be confessedly correct, that the cause of the stone's falling is its being *within the sphere* of the earth's attraction.' It is cool of Mill to say that this expression would be confessedly correct. I know not who has made the confession, but I know that not the rack nor the thumbscrews would wring such a confession out of me. Being within the sphere of the earth's attraction is not an action, and therefore cannot be a cause of anything. It is a state, and for the purpose in hand a passive state, and therefore is not a cause, but a condition.

'We proceed to a further condition. The stone is immersed in water: it is therefore a condition of its reaching the ground, that its specific gravity exceeds that of the surrounding fluid, or in other words that it surpass in weight an equal volume of water. Accordingly anyone would be acknowledged to speak correctly who said, that the cause of the stone's going to the bottom is its exceeding in specific gravity the fluid in which it is immersed.' Mill might make this acknowledgment, but I doubt if anyone else would, and for my part I certainly should not. According to the rule I have laid down, the specific gravity, being a passive state and not an action, is a condition, not a cause.

Mill sinned against the light. He was not ignorant of the view here adopted: it was brought to his notice by a reviewer,

and after examination he deliberately rejects it. The reviewer says 'we always apply the word cause rather to that element in the antecedents which exercises *force*.' Thus he had the temerity to defy Hume, and he came nearer than any other writer to the view taken in this book. One of Mill's instances is 'The army was surprised because the sentinel was off his post.' He considers this as a justifiable and proper expression, which no doubt it is, and that it means 'The cause of the army being surprised was the sentinel's being off his post,' which it does not, or does not necessarily. Mill, though he always expresses himself clearly, rarely expresses himself accurately, and here he is inaccurate. 'Because' may indicate a cause, a condition, or a reason. What Mill is contending for is that it is correct to use the second expression about the surprise of the army. The reviewer says, and I agree with him, that it is incorrect, and I add that it is incorrect because the sentinel's being off his post is not an action, but a passive state, and therefore a condition. The reviewer says, and again I agree with him, that the allurements or forces which drew the sentinel off his post may rightly be called the cause of the surprise of the army, and to this Mill objects that it can scarcely be wrong to say the surprise took place *because* the sentinel was absent; and right to say it took place *because* he was bribed to be absent. This is *ignoratio elenchi*. We are dealing with causes only, and 'because' may refer to causes, conditions, or reasons, and Mill, like other logicians, never uses a univocal word if he can find an ambiguous word to serve his purpose. Let us put it into accurate language. It is wrong to say the cause of the surprise was the sentinel's *being* off his post, for that implies a passive state and a condition. It is right to say the cause of the surprise was the sentinel's *going* off his post, or *deserting* his post, for these imply action; and for the same reason the bribing of the sentry may properly be called a cause of the surprise.

In every book on medicine we find age, sex, race, time of year, climate, and so forth enumerated among the causes of diseases. It is clear that none of these is an action. None of them therefore can be a cause of disease. Occupation also is called a predisposing cause of disease; but though the occupation of the patient is an action, it is an action not on the patient, the thing changed, but by the patient, which is

a very different thing. When occupation is a factor in producing disease it is therefore usually a condition, not a cause; but there are some cases in which it may properly be called a cause. Dry grinding produces a quantity of irritating dust, which is inhaled by the dry grinder, and irritates the delicate walls of the air-cells of the lungs, in such a way as to produce inflammation in them, which is called grinder's phthisis. In this case the occupation of the patient is an indirect cause of the disease. It causes a result—the presence of dust in the air—which is a condition of the disease.

A condition has been defined as a passive state . . . material to the effect, or such that without it the effect would not have been produced; and according to this definition, every condition must be necessary to the effect; yet we often speak of favouring conditions, with the implication that they favour or assist the production of the effect, which yet might be produced without them. The expression 'favouring condition' is a convenient expression, and is not inaccurate if it is properly understood and defined. Under given conditions a seed will germinate, and the plant will grow to maturity, flower, and seed. All the conditions necessary to its life and growth to maturity must therefore have been present; but under other conditions of aspect, moisture, soil, and so forth, it might have reached maturity sooner, might have attained a larger growth, might have produced more flowers and more seed, and might have lived longer. These other conditions were not necessary to the life, growth, and maturity of the plant; but they favoured its life, growth and maturity; and though not necessary to the production of some effect, they were necessary to the full or extra effect over and above that produced in the first set of conditions. A favouring condition is, therefore, a condition without which some effect will be produced on a given thing by a given cause, but with which more of that effect will be produced, or the effect will be produced more speedily by the operation of the same cause, or both. With respect to the production of some effect, the second condition is a favouring condition: with respect to the production of the extra effect, or the earlier effect, it is a necessary condition.

There is another sense in which the terms necessary condition and favouring condition are contrasted. If in certain con-

ditions a certain amount of an action is necessary to produce a certain effect, and if, when a new condition is introduced, less of that action will produce that effect, then this new condition is called a favouring condition. It is not necessary to the production of the effect by a given intensity of action, but it is necessary to the production of the effect by a less intensity of action. Thus, though a condition is always necessary for the production of an effect by a given action, yet it is convenient and justifiable to distinguish between necessary and favouring conditions if we bear in mind the conventional meanings of 'favouring.'

Frost, if sufficiently intense, will infallibly kill the blossom of pepin fruits. A less degree of frost will not kill the blossom if it is dry, but will infallibly kill it if it is wet. Wetness of the blossom is a necessary condition to the destruction of the blossom by this less degree of frost, but it is not a necessary condition to the destruction of the blossom by frost in general. It is called, and may justifiably be called, a favouring condition of the killing of the blossom by frost.

Summary.

A condition has never hitherto been satisfactorily distinguished from a cause. The true distinction is that a cause is an action, a condition a passive state.

By successive approximations we reach the definition that a condition is a passive state of or about the thing acted on by the cause, and material to the effect.

The difference between a necessary and a favouring condition is verbal. A condition is always necessary to the production of a given effect by a given action; but, if, under an additional condition, the effect would be produced sooner, or more of the effect would be produced, or the same effect would be produced by less of the action, then that additional condition may be termed a favouring condition with respect to the general causation of that effect, though it is a necessary condition with respect to particular cases.

CHAPTER IV.

CAUSATION.

WE may now turn to the consideration of the third constituent in the relation. We have considered the terms—Cause and Effect—and we now turn to the consideration of the link, or 'relating relation' which binds them together, and which I call the ratio. The question we now have to discuss is What is the nexus between cause and effect? or, Given an action on a thing, and a following change or contemporaneous unchange in that thing, what is it that converts this time relation into a relation of causation? in short, What is the mark or character of Causation?

Hume, after arguing at length that there is no connection at all between cause and effect, astounds us by defining their relation as 'if the first object (the cause) had not been, the second (the effect) had never existed,' and thus declares not merely connection, but necessary connection, between them. Mill, as we have seen, proposes one definition after another, not as successive approximations to a final clarified expression, not even as alternatives of equal value, but he wanders on, giving one definition after another, not noticing that they are incompatible, and seemingly forgetting, when he formulates a new one, that he had ever formulated one before. The two qualities on which he most insists are invariableness and unconditionalness, but he soon abandons invariableness, and he insists throughout that conditions are necessary to causation. Dr. Fowler pins his faith to invariableness of succession, but Mr. Welton denies sequence as being necessary to causation, and in this no doubt he is right; but he goes farther, and denies that sequence or any time relation enters into causation, and in this he is unquestionably wrong. According to him, 'the relation of causation is found in the securing of those conditions, which are, consequently, at once both cause and effect,' not a very illuminating statement, and not quite consistent with his definition of cause as 'a totality of conditions whose existence secures the effect'—causes it, in fact. Professor Carveth Read,

whose pronouncements always deserve consideration, enumerates five marks of causation, which it will be well to examine, since one or more of them are adopted by most other writers. 'The Cause of any event, then, when exactly ascertainable, has five marks: it is (quantitatively) *equal* to the effect, and is (qualitatively) its *immediate, unconditional, invariable antecedent*.'

The quantitative equality of cause and effect is frequently assumed and asserted, but it seems to me to rest upon a very insecure foundation, and to be based upon very misty notions of what a cause is, and of what an effect is. The instances given are almost always chemical combinations, and it is said 'When oxygen combines with hydrogen to form water, or with mercury to form red precipitate, the weight of the compound is exactly equal to the weight of the elements combined in it.' No doubt it is, but what are equated here are two weights, and I do not see how it can be maintained that the weight of the elements is the cause, or the weight of the compound the effect, of the combination. The causes of the combination of oxygen and hydrogen are first, the mixing of them, and second, the passage of an electric spark through them; and I cannot see that the mixing is equal to the effect, or that the spark is equal to the effect, which is not the weight of the water, but the formation of water. The effect in this case is a change—the change from a mixture of gases to a liquid; and there is nothing in this change that is equal to the spark. The cause of the maintenance of the mercury in a Torricellian tube is the weight of the air, and the weight of the air is certainly equal to the weight of the mercury; but the effect is not the weight of the mercury, but the maintenance of the height of the mercury, and this cannot equal the weight of the air. As another instance of equality of cause and effect, Professor Carveth Read says the numbers of any species of plant or animal depend on the food supply, and no doubt they do in part, but the numbers are not equal to the food supply. The number of lions in a district is not necessarily equal to the number of antelopes in that district; and if they were, the antelopes are not the cause of the lions. Another instance of causation adduced by Professor Carveth Read is still more to seek. 'How learn to play the fiddle? Go to a good teacher (then, beginning young enough, with natural ability and great diligence, all may be well).' I am at a loss to discover how the cause in this case can be quantitatively

equal to the effect. No. I think the quantitative equality of cause and effect is as idle a dream as the identity of cause and effect : it is founded upon misapprehensions, and is not true, nor even is it sense.

The next mark or character of causation is *immediacy*. The relation of causation is said to be immediate, by which is meant immediate sequence. Mr. Welton, as we have seen, confuses immediate sequence with simultaneity. He takes it that an effect which immediately follows a cause is simultaneous with the cause, and from this he jumps to the further conclusion that simultaneity means identity, so that an effect that immediately follows the cause must needs be identical with the cause. I do not think that either of these views needs serious refutation ; but the assumption that an effect must necessarily follow immediately on a cause does require careful examination. Certainly in common speech, and in the light of that common sense which philosophers so much and so universally despise, there is no such necessity ; nor is there any necessity in law. If a man wounds another, and if that other dies of the wound at any time within a year and a day of the assault, the assault is in law the cause of the death, and the assailant may be guilty of murder. Of course, philosophers are not bound to make their definitions conform to the definitions of law ; but it is very desirable that philosophers should not live wholly in a balloon of speculation, out of all touch with mundane and practical affairs. The use of opinion is to be a guide to conduct, a truth that philosophers rarely recognise ; and lawyers have this advantage over philosophers, that their definitions are perpetually being put to the test of practical use ; and if they are found to be faulty from this point of view, the definition must be discarded or amended. Philosophers are under no such obligation. They can, if they please, define 'the Knave of Hearts as the Jackovarts,' or that which depends on conditions as unconditional, or sequence as simultaneity, or simultaneity as identity, or causation as implication, or that which cannot be perceived as a product of perception, or a battle as a substance, and no one can prevent them ; nor are they under any obligation to make their definitions square with their practice ; but when one is immersed in practical affairs, and is writing for the guidance of those whose business it is to discover and record the causes of actual occurrences, it is prudent to

take into account the notions that are prevalent among men of affairs, and not lightly to reject them.

The General Register Office is a department of the State maintained at considerable expense, and engaged in collecting and presenting to Parliament immense statistics of the causes of death; and the Registrar General has no hesitation in admitting into his Tables, and presenting to Parliament, causes of death that may have preceded the effect by weeks, months, and years. Neither he, nor his staff of officials, nor the tens of thousands of medical men who furnish him with items, nor the High Court of Parliament, nor any of the multitude of scientific men who have used these tables, have ever made any objection to them on the score that the alleged causes of death are not causes of death because the result does not immediately follow on the cause. The Tables are not immaculate: they are open to objection, as I shall presently show; but they are of very great value to Officers of Health and others in the prevention of disease, even though it is from time to time found that some of the alleged causes of death are, after all, not causes; but if immediacy is a necessary element of causation, the alleged cause of death would be the true cause in scarcely one of the millions of instances which the General Register Office has recorded; and if the alleged cause were in every case false, then the usefulness of the Tables would be destroyed, and they would be of no value at all, either to Officers of Health or to any other human being. The *prima facie* presumption against immediacy as a quality or mark of causation is therefore very strong.

As I have shown in the previous discussion, immediacy in the strict sense of the term cannot obtain in any case of effectuation, for an effect is a change or an unchange, and an unchange by its very nature implies duration, and cannot be immediate; while in experience every change takes time, however short that time may be. Perhaps the nearest approach to immediacy that we know is the effect of lightning upon our mind the instant the flash passes; but this we know takes time—time for the light to travel to our eyes, time for it to traverse the media, time for a change to take place in the retina, time for an impulse to travel to the brain, time for it to produce its effect there. Strict immediacy between cause and effect is unknown to us; but is not this pushing matters too

far? May there not be a practical immediacy that is required for causation, although immediacy in the pedantically accurate sense there cannot be? In other words, ought we not to limit our notion of causation to that change which appears to our senses to follow immediately upon an action, even though in strict accuracy some infinitesimal fraction of a second may separate them? Well, as has already been shown, even in such a restricted sense immediacy is not required in the current and accepted meaning of causation; and if it is to be imported into the philosophical meaning, then philosophy cuts herself off, in this respect, finally and for all from utility and common sense; and this is inadvisable if it can be avoided. But there is no earthly reason why philosophy should thus make a fool of herself. One of the favourite maxims of logic is *Nota notæ, nota rei ipsius*. As a logical maxim it is of little or no value, but in the present connection it has this value, that it effectually estops logicians from objecting to the maxim that I here present to them:—*Causa causæ, causa rei ipsius*. The cause of a cause is the cause of the effect.

Πάντα ῥεῖ: all things flow. The universe is a series of continuous change. In this continuous series we may take, anywhere we please, a longitudinal section of any length we please, and call the first change the cause of all or any that follow, and the last the effect of all or any that have gone before: or we can call the first the cause of the last, and the last the effect of the first. The process is familiar with us from childhood, and was solved for us long before our infantine minds were sophisticated by reading books on logic. If the cat began to catch the rat, the rat began to gnaw the rope, the rope began to hang the butcher, and so on until the pig began to get over the stile, and the old woman reached her destination, then the action of the cat was the cause of the rope being gnawed, of the butcher being in peril of death, and of all the other events in succession down to the old woman getting home in time. The cat's action was the cause, immediately or mediately, of each effect, and it was not less efficacious when it acted mediately than when it acted immediately. It is just as scientific, and just as philosophical, to attribute one man's death to the bite of a mosquito twenty years before, as to attribute the death of another to the explosion of a shell which blew him to bits in a moment.

The third distinguishing mark of causation is *unconditional*—

ness. Mill invented the term, and gives, as is his custom, several definitions of it, each different from the rest. It is synonymous with necessity; it means whatever supposition we make about all other things; it means subject to no other than negative conditions; it means as long as the causes do not vary; it means, in short, pretty much what you please. Mill's discussion of unconditionality is a striking example of his utter muddle-headedness. Invariable sequence, he says, is not synonymous with causation, unless the sequence, besides being invariable, is also unconditional, and this he says immediately after he has defined the cause as 'philosophically speaking' the sum total of the conditions! It is therefore philosophically speaking conditional, and speaking otherwise unconditional. This, however, is only a beginning. His fifth or sixth definition of a cause 'confines the meaning of the word cause to the assemblage of positive conditions without the negative, and then, instead of "unconditionally" we must say "subject to no other than negative conditions."' So that in the first place the cause is the sum of the conditions, both positive and negative; in the second place, it is the positive conditions without the negative; and in the third place it is the negative conditions without the positive. There is only one other possible alternative, that the cause is neither the positive nor the negative conditions, and this, which is the correct view, is the only one that Mill does not give. Hume is inconsistent enough, goodness knows, but Hume is a miracle of consistency in comparison with Mill.

Professor Carveth Read adopts unconditionality as a mark of causation, and his meaning of the term is quite different from any of Mill's, though he says it is what Mill means. When Mill defines the cause of any effect as its unconditional antecedent, he means, according to Professor Carveth Read, that it is that group of conditions which, without any further condition, is followed by the event in question. According to this, when Mill said unconditional he meant un-further-conditional; and it is possible that Mill may have had sometimes in his mind some such meaning as this; but the only thing we can be sure of is that what he meant at one time was not what he meant at another time, and there is no evidence or indication that he had any definite meaning at all. However, there are few writers on causation who do not adopt Mill's assertion

that it is unconditional, and all of those who assert that it is unconditional assert, as Mill does, that it is conditional, and never recognise the contradiction. They all identify or confuse causes with conditions; they most of them speak of the cause as the sum-total of the conditions; and even a writer who owes so little allegiance to Mill as Mr. Welton calls it the totality of the conditions; and how that which depends upon conditions can be unconditional, I confess I do not understand. I suppose Mill must have had something in his mind when he said that to constitute a cause the conditions must be unconditional, but what it was we do not know, and whether Professor Carveth Read is correct in his surmise that it was un-further-conditional cannot now be known. Anyhow, to speak of that as unconditional which is on all hands admitted and proclaimed to be subject to conditions seems to me an inadmissible abuse of language.

The fourth of Professor Carveth Read's stigmata of causation is *invariability*. Mill adopted the notion from Hume, and every writer of that school pins his faith to invariability; but when we seek the meaning that they attach to the term, we find ourselves in wandering mazes lost. Does it mean that the cause is invariable? or that the effect is invariable? or that the cause is invariably followed by the effect? or that the effect invariably follows the cause? As far as I can make out, sometimes one and sometimes another, but most often none of these meanings is intended. Mill varies in his statements about invariability as in those about everything else. The most definite opinion he gives is this: 'That we should believe not only that the antecedent always *has* been followed by the consequent, but that so long as the present constitution of things endures, it always *will* be so.' It seems from this passage that 'invariably' means, with Mill, 'always,' and I believe that this is the meaning that his followers attach to it when they mean anything at all; but like their leader, they never keep long to the same meaning of any important word or doctrine, and Mill himself, on the very next page, says, 'Invariable sequence . . . is not synonymous with causation unless the sequence, besides being invariable, is unconditional.'

When it is said that the cause is the invariable antecedent, what ought to be meant, though I doubt very much if it is meant, is that the cause is that antecedent which does not vary.

If this is the meaning, it is doubly wrong, for in the first place, a cause need not be an antecedent, and in the second, if it is an antecedent it may vary, and usually does vary. If the antecedent must not vary, then the pressure of the gas of an exploding cartridge is not the cause of the propulsion of the projectile, for the pressure of gas varies from moment to moment as the projectile travels along the bore of the gun.

When it is said that the effect is the invariable consequent, what ought to be meant, though I believe it never is meant, is that the effect is that consequent which does not vary. If this is the meaning, it is undoubtedly wrong, for an effect need not be a consequent, and when it is a consequent, it may vary. If the consequent must not vary, then the movement of a motor car is not due to the action of the engine, for the speed varies with the gradient, and with the surface of the road.

When it is said that causation is invariable sequence, what ought to be meant is that the time and manner in which the cause precedes the effect, or in which the effect follows the cause, do not vary. But in the first place, causation need not be sequence, and in the second, when it is sequence, it may be variable. The time at which the report of a gun reaches us does vary with our distance from the gun; and the remittent manner in which the light from the fixed stars reaches us varies from the steady manner in which the light from the planets reaches us.

But suppose, what I believe is the case, that writers on causation express their meaning in this matter, as in other matters, inaccurately, and when they say invariably they mean always; is it true that there is no causation unless the cause is always followed by the effect, and the effect is always preceded by the cause? Then how if cause and effect are contemporaneous, as they are in the causation of an unchange? If sequence is always necessary to causation, then such unchanges as the maintenance of the motion of a locomotive, or the maintenance of animal life, or the suspension of a weight by a cord, or the prolonged boiling of water, are not caused. They are not effects, nor instances of causation. But even supposing there is no causation except the sequence of change on action, is it true that there is no causation unless this sequence always happens? Then how if it happens once only? Once, as the boy said to the man who declared that he was once

as active as the boy, 'Once ain't often.' Still less is it always. If I see a bottle of wine fall on a stone floor and smash, am I to deny that the fall of that bottle on to the floor was the cause of the smash? It has happened only once and can never happen again. 'Oh, but,' says the logician, 'when similar bottles have fallen on stone floors they have always broken.' Indeed? I have it in mind that this very bottle had previously slipped out of my hand and fallen a sixteenth of an inch on to the very same stone floor, and yet was not broken. 'But then the cause was not the same, for the bottle did not fall so far.' Granted, but your definition says nothing about the same cause, it says the cause is always followed by the effect; and you now say that the cause of the bottle breaking was its fall for a certain distance; but I had previously let that bottle fall the very same distance on to a truss of straw, and the bottle did not break. 'Ah yes, but when I say the same cause I mean the same cause acting in the same conditions.' But if the same cause had acted in the same conditions the bottle would have smashed before, and you cannot be always smashing the same bottle, you know. It seems to me that *cadit ampulla, cadit quæstio*. But may we never predicate causation until an event has occurred repeatedly? Then how often must it be repeated before we can say it always *has* happened? how often before we can say it always *will* happen? Suppose a man hits me in the eye, how many times must I get him to repeat the blow before I can be sure that it is the cause of my eye turning black? 'But,' says the logician, 'a blow on the eye always *has* been followed by the blackening of the eye, and always *will* be followed by the same phenomenon.' Has it? What do you know about black eyes amongst Mousterian or Neanderthal men? And will it? Why? 'Because the same cause is invariably followed by the same effect.'

'My friend,' I reply, 'you are a logician; did you never hear of the *circulus in probando*?'

I can imagine the tormented logician answering these objections something in this way:—

'When I say invariably, of course I don't mean invariably; I mean always. At least I don't exactly mean always. You are so confoundedly particular. You expect me always to mean precisely what I say, and to say precisely what I mean;

and you expect me always to have a precise meaning to express. You forget that I am a logician. When I say the effect invariably follows the cause, I mean of course that it follows unconditionally, that is to say, in certain conditions.'

'That,' I should answer, 'is a curious meaning for unconditionally; but waiving that, what are these conditions?'

'Why, of course, the same conditions in which it happened before.'

'But, *ex hypothesi*, it never has happened before.'

'Well then, the same conditions in which it would have happened before if it had happened before.'

'Thank you very much, but on your own showing, the same conditions never are, and never can be repeated.'

'Really, sir, I cannot bandy words further with a person who knows nothing of logic. Allow me to bring to your notice the well-known philosophical principle, of which you have never heard, that all reasoning is through a universal. I wish you a very good morning, and take my leave of you.'

It would be difficult for me to suppress Hamlet's answer—You cannot, sir, take from me anything that I more willingly will part withal.

No, I am afraid invariability must go after equality and immediacy and the rest of the marks that are supposed to characterise causation, and with them must go the last of Professor Carveth Read's distinguishing marks of cause, that of *antecedence*. It is manifest to everyone who is not wilfully blind, that the cause of a change must be antecedent to the effect, even when cause and effect are apparently simultaneous. The fracture of a glass bottle by the blow of a stick seems to be instantaneous, and no doubt the time consumed is very short. But if the operation were photographed by a rapidly moving cinematograph, and the film was to be put through the lantern very slowly, we should see the glass yield and bend before the pressure of the stick, and give way first on the surface remote from the stick, and gradually spread until it involved the whole thickness. We should see the splinters separate, not simultaneously, but successively, and that the whole operation took time. This, I think, is one answer to Mr. Bertrand Russell's contention that we can divide up the cause, or the duration of the cause, into many successive instants, of which the last only is entitled to the name of

cause; and that it is this last division only upon which the effect follows instantly, and with which the effect is virtually continuous. These are not his words, but this is the meaning of his doctrine as I understand it. It is not so. The cause has a certain duration; and during every instant of that duration it is a cause, and is in action, and is causing more and more of the effect. The effect also has a certain duration. As the cause begins to act, the change begins to occur; as the cause continues, the change increases; when the cause ceases, the effect reaches its maximum. As soon as the cause ceases to act, the effect, as an effect, that is as a progressing change, also ceases, and becomes a result. The total effect is not reached until the cause ceases to act, and it is in this sense, and in this sense only, that the effect succeeds the cause, and that cause and effect are antecedent and consequent.

But when the effect is an unchange, the cause does not and cannot precede, nor can the effect follow. In this case cause and effect are contemporaneous; the only exception, which is but an apparent exception, being the delay due to inertia in the starting and cessation of that unchange which is the motion of a body, such as a cart, a motor car, or a railway train, that owes its motion to continuous action.

What, then, is the quality which characterises and marks causation? It is not at all difficult to discover, and indeed it was discovered and assigned long before the day of Hume, but he took a violent prejudice against it, and all his successors have been afraid of it. They have avoided it as if it were an asp or a viper, and few of them even dare to mention it; and yet there is nothing frightful about it, and if the nettle is firmly grasped, it not only fails to sting, but even furnishes a grateful and sufficient support.

Daily the tide rises on our coasts, and daily thereafter men and women in this country marry; and in some respects the consequents are invariable. They invariably marry two at a time and with some sort of ceremony. Moreover, this consequence always follows the antecedent: not a rise of the tide occurs but some marriage follows it. As far as history goes back, this consequent *has* always followed this antecedent; as far as we can foresee, the consequent *will* follow the antecedent 'as long as the present constitution of things endures'; and these are the conditions that are said to convert mere time-

sequence into causation. But they don't. No one but a lunatic or a logician would regard the rise of the tide as the cause of men and women marrying; and why not? Ask the first man, woman, or child (not being a lunatic or a logician) you may come across why they do not regard the rise of the tide as the cause of marriage, and he, she, or it will answer 'Because there is no connection between them.' This is the obvious answer, and it is a very good answer as far as it goes, though it is not quite a sufficient answer.

There are two reasons why it is not quite a sufficient answer: first, because things may be connected together in sequence without being cause and effect, and second, because it does not explain the nature of the connection.

Night always follows day, and the two are connected, but yet night is not the effect of day. The flight of the projectile always follows the recoil of the gun, and is connected with it, but the recoil of the gun is not the cause of the flight of the projectile. The sinking of the stone always follows the splash, and is connected with it, but the splash is not the cause of the sinking of the stone. Although, however, these instances prove that mere connection in sequence does not constitute causation, even when the sequence is constant (which is what logicians mean by invariable) yet it is clear in each case that the connection in sequence does depend upon causation. The connection between day and night is that they have a common cause, the rotation of the earth. The connection between the recoil of the gun and the flight of the projectile is that they have a common cause, the explosion of the charge. The connection of the sinking of the stone with the splash is that they have a common cause, the fall of the stone into the water. It is evident that we are getting 'warm.' If the connection between antecedent and consequent does not itself constitute causation, yet it is evident that it is indispensable to causation, and that we may say provisionally

Causation is the connection between cause and effect.

Although, however, this is true, it does not carry us much forwarder. It does not display the nature of the connection. In order to get a complete definition of causation, and to clarify the concept, we must substitute for the terms cause and effect the definitions of them at which we have previously arrived. We shall then get the following definition :—

Causation is the connection between an action and the following change or accompanying unchange in the thing acted on.

If we apply this definition to the foregoing test cases we find that it fits, and satisfactorily explains why they are not cases of causation although they are causally connected. Night always follows day, and is connected with it ; but night is not the effect of day, and why not ? Because, although there is a connection between them, the connection is not between an action and a change in the thing acted on. Day does not act upon anything to cause night. The recoil of the gun always precedes the flight of the projectile, and is connected with it ; but the recoil of the gun is not the cause of the flight of the projectile, and the reason is manifest—the recoil of the gun does not act on the projectile, the thing in which the effect is produced. Similarly, the reason the splash is not the cause of the sinking of the stone is that the splash does not act upon the stone, the thing in which the change occurs.

The same formula satisfies all Mr. Welton's difficult cases. 'The dryness of a boy's clothes before his immersion in water is not the cause of their subsequent wetness.' It certainly is not, and I doubt if even a logician has ever suggested that it is ; 'that cause can only be found in that spatial relation between the clothes and the water which we call contact.' It is true that we may speak of the contact of the water with the clothes as the cause of the wetness of the clothes, but what we mean, or ought to mean, by contact, in this case, is not being in touch, but bringing into touch. The cause of the wetness of the clothes is the action of bringing water into contact with them, and then the action of water upon them. Once the clothes are wet, the continued contact of the water with them is not the cause of their wetness, it is their wetness. The bringing of the water into contact with the clothes is the cause, the effect is not wetness, it is becoming wet. Wetness is not an effect, it is a result. Mr. Welton's statement is vitiated by two confusions. He says wetness when he means becoming wet, and he says contact when he means bringing into contact.

'A dropping of ink upon paper causes a blot, but the blot is there as soon as the contact of ink and paper is made ; it is that contact.' Here again there is confusion. The dropping of the ink upon the paper is rightly called the cause of the blot, for the dropping of the ink is an action on the paper, and the blot

is the change in the thing acted on, and is connected with the action. It is true that the blot is there as soon as the contact is made, as every effect is there as soon as the causing action is complete; but I see no ground for asserting that the blot is the contact. As well might we say when a man lies in bed, that the contact of the man with the bed is the man. The blot is not the contact. The blot is the layer of ink adhering to the paper.

There is yet one thing wanting to the definition of causation. It is, we find, the connection between an action upon a thing and the sequent change or accompanying unchange in that thing; but we have yet to ascertain the nature of the connection. This cannot be put much better than in the words in which Hume stultifies his whole previous argument,—‘where, if the first object had not been, the second had never existed.’ In other words, the connection is a necessary connection. Much unnecessary verbiage has been wasted in discussing the nature of necessity, which is perfectly clear to everyone but philosophers. By necessary connection I mean that the action is so connected with the change or unchange that if the action had not taken place, the change or unchange would not have occurred; and the action taking place in the conditions in which it did, the change or unchange connected with it was unavoidable and unpreventable. That, I believe, asserts the true nature of causation, which may be finally defined thus:—

Causation is the necessary connection between an action and the sequent change or accompanying unchange in the thing acted on.

Mill boggles at the term necessary, and suggests that its meaning is not clear. ‘If,’ he says, ‘there be any meaning which confessedly belongs to necessity, it is *unconditionalness*,’ and thus he substitutes for a plain clear word which everyone understands, a word which no one else understands, and which he does not understand himself. What he means by ‘confessedly’ it is difficult to surmise, for no one but himself has ever defined necessity as unconditionalness, and not even his followers confess that they mean the same thing. It is another of his wandering and unwarrantable assertions, adopted, apparently, on the spur of the moment, without consideration or justification. No one has ever confessed that necessity means unconditionalness; and it doesn’t. Whichever of Mill’s various definitions of unconditionalness we adopt, it bears no resemblance to necessity.

But is causation the necessary connection that I have asserted it is? It may be said that if the severing of an artery which causes a man's death had not taken place, the death would still have occurred sooner or later, and therefore the connection between the cause and the effect was not necessary. The obvious answer is that though the connection between the severing of the artery and the death of the man was not necessary, the connection of the severing of the artery with his death by hæmorrhage at that time and place was necessary. It was necessary to that particular effect. And it may be said that the death did not necessarily follow, for if a surgeon had been present, and had tied the artery, the man would not then and there have died, so that the change was neither unavoidable nor unpreventable; and this is true, but then the conditions would not have been the same. The conditions being what they were, the change followed necessarily, in the sense in which I have defined necessarily, on the action; and it is this necessary connection between the cause and the effect that constitutes causation.*

* A doubt, I find, is felt by a reader, whether the maintenance of the motion of a locomotive can properly be called an unchange; for it may be said—Are not all parts of the machinery continuously changing in position? Animal life also is a perpetual series of changes; how then can it be called an unchange? The answer is that the nature of things as it appears to us, and as for our purposes it is, varies according to the way in which we choose to contemplate them. An unchange, as I have defined it, is a way of contemplating things, just as a class is a way of contemplating things. No such thing as a class exists except in our minds. When several individual things have some quality in common, such as hardness, or whiteness, or motion, we may mentally group them together, and contemplate them together as all possessing that quality; and by the possession of that quality they are grouped together in our minds, and consolidated into a single object of contemplation—a class of hard, or white, or moving things. They are not grouped together in fact, or outside of our minds. Both the North Pole and the South Pole are white, and may be contemplated together as adjoining white things in the class of white things; but in fact they do not adjoin, but are wide asunder. To call things a class is to contemplate them together; and to separate them, not actually, but in contemplation, from other things that have not the class-quality. Just in the same way, we may take all the successive changes of a locomotive, both the internal changes of its parts, and the changes of position of the whole with respect to its surroundings, and contemplate them all together, as grouped and consolidated into a single object of contemplation, which we call, not a class, but an unchange. We call it an unchange, or the maintenance of an unchanging state, because, as movement, it does not change to rest, although there are forces in action—friction, gravity, and so forth—tending to bring it to rest. Each movement of the parts is a change, and may be so contemplated if we choose; but we need not so contemplate it. The movement of the whole is change of place with respect to surroundings, and may be so contemplated; but it need not be so contemplated. We may, if we please, regard the movement, not in contrast with surrounding things which remain at rest, but in contrast with its own possible state of rest, or in contrast with its being brought to rest, which would be a change of another kind, but still a change. So contemplated, the state of motion is not a change, but the maintenance of the unchanging state of motion. In short, it is an unchange.

Summary.

This chapter examines the five characters or marks that are said to be characteristic of causation, viz., equality of cause and effect, immediacy, unconditionality, invariability, and antecedence; and shows that not one of them properly or necessarily pertains to causation.

By successive approximations the definition is reached that Causation is the necessary connection between an action and the sequent change or accompanying unchange in the thing acted on.

The meaning of 'necessary' in connection with causation is defined.

CHAPTER V

SUBSIDIARY PROBLEMS.

I. PLURALITY OF CAUSES.

MILL is the inventor of the phrase Plurality of Causes, and he gets into his usual muddle over it, a muddle which even his followers have discovered to be a muddle, but which they have only partially cleared up. It will be remembered that one of his statements of the Law of Causation is 'that every consequent is connected in this manner [invariably] with some particular antecedent, or set of antecedents. Let the fact be what it may, if it has begun to exist, it was preceded by some fact or facts with which it is invariably connected.' It would be difficult to put the statement more positively or more strongly, and as he himself would say more unconditionally. It is an unqualified assertion; and yet in a subsequent Chapter he says 'There are often several independent modes in which the same phenomenon could have originated. . . . Many causes may produce mechanical motion: many causes may produce some kinds of sensation: many causes may produce death.' Inconsistency is, as I have said elsewhere, with other people a vice to be avoided. With logicians it is an end to be pursued for its own sake. A writer on any other subject who should thus stultify himself by self-contradiction would be discredited, but with logicians self-contradiction is rather a virtue than otherwise.

It is clear that in this use the term Plurality of Causes is wrong, and doubly wrong. In the first place it does not mean that any single instance of effect is due to more than one cause, and in the second it does not mean that more than one cause may be necessary to produce a certain effect. What is meant is that an effect of a certain kind may be due on one occasion to one cause and on another occasion to another cause. This is not Plurality of Causes: it is Alternity of Causes, or, as Professor Carveth Read calls it, Vicariousness of Causes. When an effect is said to be due to a plurality of causes, what is meant is that if several effects resemble one another in some particular,

one may be due to one cause and another to another. The death of A by drowning is due to one cause—drowning—and no more. It is not due to a plurality of causes. The death of B by shooting is due to a different cause, it is true, but then it is a different effect. It is a different effect, occurring on a different occasion, under different circumstances, to a different person. Both effects include the element or ingredient of death, but the effects are not death, but deaths; and when it is said that many causes may produce death, what is meant is that many different causes may produce many different deaths; which is not so very paradoxical.

When Mill said many causes may produce some kinds of sensation, we may suppose that what he had in his mind was sound, which is a kind of sensation. But sound in general is not an effect: it is a generalisation from many individual instances of sound, each of which was an effect, and an effect of one single cause. Mill's blunder consists in generalising the effects without generalising the causes. If we generalise many instances of sounds into the one concept of sound, and call the generalisation a single effect, we should also generalise the causes of all these sounds, and call the common ingredient in them the cause of sound. Each separate sound will then have its separate cause; and the common ingredient in them all will have its common cause in aerial vibration. Similarly, if we generalise the common ingredient in many deaths, and call it death, we must generalise the common ingredient in all the causes of these deaths and call it cessation of the heart's action. There is no such thing as Plurality of Causes in Mill's sense, unless we generalise the effects while leaving the causes particular, which is not a very legitimate logical operation.

It is of course perfectly legitimate, and may be very useful, to investigate all the cases in which effects have a common ingredient, such as deaths, or sounds, and to determine as many as we can of the combined causes and conditions by which the effects are produced that have this common ingredient: this is very proper, and may be very useful; but in such cases we are seeking the causes, not of an effect, but of a common ingredient in many effects; and the plurality of causes applies to the plurality of effects, and not to the common ingredient in them, although for the sake of brevity and con-

venience we may allow ourselves to speak as if it did. In any case, Plurality of Causes is clearly a misnomer here; what is meant is not Plurality of Causes but Alternity of Causes.

There is a sense in which plurality of causes is a perfectly justifiable expression. There is a sense in which every event has many causes, innumerable causes, and there are certain effects that admit, and others that require, the cooperation of more than one cause to bring them about. These we will examine in their turn.

II. THE REGRESSION OF CAUSES AND THE PROGRESSION OF EFFECTS.

A cause is an action in certain conditions upon a thing: an effect is a change or unchange in the thing acted on, and leads to a result. In the physical world, action means the transfer or liberation of energy. It is now a commonplace that energy neither appears out of nothing nor disappears into nothing, but that every manifestation of energy is the release of energy from store or its transfer from one thing to another. If it is expended from store, then at some past time it must have been put into store by some action or other. If it is transferred from place to place, such transfer is action, and action was as necessary to put it into the place from which it comes as to put it into the place to which it goes. In short, action, which is cause, is also always either effect or result. It is always produced by previous action.

The action of the pig in getting over the stile was caused by the action of the dog in biting him. The action of the dog was caused by the action upon it of the stick. The action of the stick was caused by the action of the fire, which was caused by the action of the water, which was caused by the action of the ox, which was caused by the action of the butcher, and so back to the action of the cat. There was a continuous regression of causes from the last effect to the first action; and a continuous progression of effects from the first action to the last effect.

What is true of this dramatic and perhaps fictitious series is true of every other case of cause and effect. The actions stretch backwards in series as far as we like to trace them, or can trace them; and the effects proceed forwards down to the

present moment in which, as actions, they are carrying on the chain of effects into a futurity of indefinite duration.

The motion of a train is the effect of the action of the wheels upon the rails, which is the effect of the action of the piston-rods on the cranks, which is the effect of the expansion of steam in the cylinders, which is the effect of heat upon the water in the boiler, which is the effect of the combustion of the coal, which is the effect of the action of the fireman in lighting and stoking, which is the effect of the action of his immediate superior in giving the order, which is the effect of the action of his superior, and so back to the directors, whose action is determined by the action of the travelling public in demanding means of travelling, which is determined in the long-run by the action of their predecessors in building up the complicated structure of the nation with its needs for travel; and so we might, if we had the knowledge and patience, pursue the series of actions back to the time when men first wandered into this country, to the time when men first were, to the beginnings of life, to the beginnings of the solar system, and further back *ad infinitum*. In this long precession every action was caused by some previous action, and produced, as its effect, a subsequent action; and the same is true of every other cause of change and of every other change. Action once taken goes on producing its effects in succession for ever.

It is a commonplace that the institutions of a nation are the results of the past history of that nation. The Napoleonic wars, the Revolution, the revocation of the Edict of Nantes, the Great Rebellion, the discovery of America, the Hundred Years' War, the Norman, Saxon, Danish, and Roman invasions, have each and all contributed to making our institutions what they are, and to making us what we are. If Julius Cæsar had not invaded Britain, I should not now be writing on the Regression of Causes, and should probably never have been born.

It is evident, therefore, that although the phrase 'Plurality of Causes,' in the sense in which Mill used it, was a misnomer, and rests upon a confusion of thought, yet there is a sense in which every effect has a plurality of causes—has an indefinitely great multitude of causes, stretching back in continuous series to infinity of past time.

III. THE RADIFICATION OF CAUSES.—INDIRECT CAUSES.

There is more than this, however. The series is not the simple series that has just been sketched. It is a complicated web of infinite intricacy. To take a very simple case, the birth of every child is the effect, and the child is the result, of the actions of its two parents. Two actions were necessary to the production of the effect. The birth of each of these parents was the effect of similar actions on the part of the grandparents, and the parents are the results of these actions, so that in the second generation upwards there were four causes. In the third there were eight, in the fourth sixteen, and at every step backwards, with every preceding generation, the number of causes increases in geometrical progression until it is controlled by the intermarriage of descendants of the same pair. But for this, the number of causes, even in historical times, would be unimaginably great.

It is the same with all other effects. An effect is produced by action upon a certain thing in certain conditions; and for the production of the effect, the thing and the conditions are just as necessary as the action that is the immediate cause. This thing and these conditions are themselves the results of causes, which are therefore also necessary to the effect. In order to produce the discharge of a gun, it is necessary to pull the trigger. This action is the cause of the discharge. It is the direct and approximately immediate cause; but every action that went to build up the conditions necessary for the discharge was a cause, more or less remote, more or less indirect, of the discharge. A necessary condition of the discharge is that the hammer should be at full cock. The action of cocking the gun was the direct and immediate cause of this result, and as the result is a condition of the discharge, the cause of this condition is a cause of the discharge; an indirect cause, but still a cause, and a cause not very remote. Anyone who is accustomed to scrutinize carefully the meaning of words must feel a certain incongruity in speaking of the cocking of a gun as the cause of its discharge; but I think that the incongruity is much diminished, if indeed it is not altogether removed, but calling it an indirect cause. We may, I think, formulate the following definition:—

An Indirect Cause is a cause of a condition.

Though the trigger is pulled with the hammer at cock, the gun will not be discharged unless it is loaded. The presence of the cartridge in the barrel is a condition of the discharge, and the action of loading the gun is the cause of the gun being loaded, a result which becomes, with respect to the discharge, a condition of the effect. The cause of this result, the loading of the gun, is therefore another indirect cause of its discharge.

It is a condition of the discharge of the gun on the pulling of the trigger that the mechanism of the lock should exist in good order: and the actions of making the lock, nay, on the same principle, all the actions involved in making the gun, are indirect causes of the discharge of the gun. There is more than this, however. The gun is made of certain materials; and the existence at hand of these materials is a necessary condition of making the gun. The actions by which these conditions were brought about, by which the materials were made, prepared, and collected, are all indirect causes of the discharge of the gun, and causes that are not only indirect, but remote also. And so we may go back to the growth of the tree of which the stock was made, to the deposit of the ore from which the metal was extracted, to the covering by alluvium of the forests which became the coal wherewith the ore was smelted, to the growth of these forests, and as much further back as we please. All these are causes, more and more remote, more and more indirect, of the discharge of the gun.

The action of pulling the trigger is a direct cause of the discharge of the gun, but it is not the only direct cause. The pulling of the trigger caused the fall of the hammer, which caused the explosion of the detonator, and each of these actions was a direct cause of the discharge of the gun. The soldier had orders to fire as soon as the enemy should come within a certain distance. The action of the officer in giving the order was a cause of his pulling the trigger, and so a direct, but a mediate cause of the discharge of the gun. The action of the enemy in coming within the stated distance was another direct cause, but a mediate cause, of the discharge; and all the actions that led up to these causes were causes of the discharge itself, direct causes, but causes more and more remote as the number of actions between the cause

and the ultimate effect increases. Thus we may carry the line of direct causes back, through the orders of intermediate officers on both sides to those of the generalissimos; to the causes of the war; to the multitudinous actions of the members of the nations at war that produced their antagonism; and so on. We have already seen that at a very early stage the line of direct causes divides into two, the actions of the soldier's superiors on the one side, and the actions of the enemy on the other; and it would be easy to show that at each step backwards the causes multiply like the ancestry of every individual man, until at length they become unimaginably multitudinous. They still remain direct causes, however remote they may become, as long as action produces action, and the line is not interrupted by the interposition of a condition.

It is manifest from these examples that both the direct and the indirect causes ramify, or rather radify (for causes are evidently rather the roots than the branches of effects), as we go backwards from the effect; and that the further back we go, the more numerous they become. The conditions may be many, and each may have many causes, depending on other conditions, which again may be many, and so on. The direct causes go back in series to an indefinitely remote past; and not in single series, but in series that spread like the spokes of a fan, and that divide and redivide and radify indefinitely.

Yet out of all these different series of innumerable causes, both direct and indirect, it is usual to select one, and to call it *the* cause. On what principle is this selection made? What, for instance, is the cause of the kettle boiling over? The action of the fire, says the master. Leaving the kettle too long on the fire, says the mistress. The neglect of the kitchenmaid, says the cook. The cook sending me upstairs, says the kitchenmaid. The cook's forgetfulness in leaving her apron upstairs, says the housekeeper. Every one of them is right. Each of these is *a* cause; but which is *the* cause?

It may seem that, strictly speaking, we should limit *the* cause to the direct immediate cause, to the action that is nearest to the effect and immediately precedes it; as for instance, in the case of the discharge of the gun to the pulling of the trigger. But we find upon trial that this will not do. In fact we very often assume, as the cause, an action that

by no means immediately precedes the effect ; and in fact we often do not know the immediate cause, and when we do know it, we often do not take it into consideration. It seems at first blush that the pulling of the trigger is the immediate cause of the discharge of the gun, but a moment's thought shows that it is not. Between the immediate cause and the effect nothing can intervene, nothing can interpose ; but the trigger acts through the medium of the mechanism of the lock, and if this mechanism is impaired, the discharge may not follow. After passing through the mechanism of the lock the action must reach the hammer, and cause it to fall ; and the action of the hammer is more nearly immediate than that of the trigger. The fall of the hammer strikes the detonator, but even this is not quite immediate, for the detonator may not explode. The truly immediate cause of the discharge is the explosion of the detonator, but this is never spoken of as the cause of the discharge, and is rarely thought of as the cause. We may put immediacy on one side, therefore : it does not determine us in fixing on the cause. Even apparent immediacy does not determine us, for we may as legitimately look upon the order to fire as the cause of the firing as the pulling of the trigger. What then should, and what does determine us in fixing upon one among the innumerable causes of an effect, and calling it *the* cause ?

It depends entirely upon the purpose in view, that is, upon the aspect of the matter in which we are interested. The master, the mistress, the cook, the kitchenmaid, and the housekeeper are each of them right about the cause of the kettle boiling over, but they all look at it from different points of view, and for different purposes. The master looks at the matter from the point of view of the physicist, and to him the cause is the physical cause, which happens also to be the immediate cause. The women all look at the matter from the point of view of responsibility, and for the purpose of fixing the responsibility. According to the mistress, the cause was such that someone was responsible. The cook seizes upon the cause that makes the kitchenmaid responsible. The kitchenmaid selects the cause that throws responsibility upon the cook ; and the housekeeper chooses the cause that not only supports the kitchenmaid but throws a double measure of responsibility on the cook.

During shooting at the butts, a trespasser gets into the line of fire, and is killed by a bullet. What is the cause of his death? That depends entirely on the point of view and the purpose of the person who makes the enquiry. To the physiologist it is arrest of the heart's action; to the pathologist it is the effusion of blood round the heart which stopped the heart's action; to the student of ballistics it is the low trajectory of the bullet; to the marksman it was the force of the wind, which deflected the bullet from the line of aim; to the ammunition expert it is the issue of the new light bullet, which yields more to the force of the wind than the men are accustomed to; to the squad instructor it was the failure of the marksman to respond promptly enough to the order 'Cease fire'; to one leader-writer it is the deplorable carelessness of the soldier; to another it is the stupidity of the civilian in crossing the line of fire; and so we could go on multiplying causes *ad infinitum*. The fact is that everyone of these may quite legitimately be considered a cause, but if we ask which is *the* cause it is evidently quite impossible to reply until we know for what purpose the question is asked. Is it to fix responsibility? Is it to prevent similar effects in future? Is it to determine the mode of flight of the new bullet? Is it to clear up a nice point in pathology? It may be any of these, and according to the purpose of the argument will be the answer to the question What was the cause?

IV. THE COOPERATION OF CAUSES.

Every effect is, as we have seen, the product of a long and complicated web of causes stretching back into infinity, all of which are necessary to produce the effect; and therefore every effect is in a sense due to a cooperation of causes. There are, however, cases in which an effect is due in a special sense to a cooperation of causes. We have found that it is a frequent and a legitimate practice to single out one of the multitude of causes to which a given effect is due, and to call that *the* cause, which it is from a certain point of view, and for a particular purpose. We call it *the* cause, because it is that one of the causes in which we are for some purpose interested, and because on that account we allow our contemplation to rest upon it to the ignoring of the rest. Just in the same way, and for a purpose, we may select from a series

of causes a certain length of the series, comprising a certain number of successive causes, and limiting or extending our contemplation to them, we may regard them as in a special sense the causes of the effect; and in such a case we regard them as cooperating more closely and more specially with one another to produce the effect than the other causes, which, for the purpose in hand, we leave out of our consideration. Or two actions may simultaneously take place on one body, so that the changes they severally produce are merged and blended in a single change; and then we naturally contemplate them in association with each other, and regard them as cooperating to produce that change. Every effect is in fact due to the cooperation of many causes, direct and indirect, immediate and remote; but according to the purpose in hand we limit our contemplation to one, two, or a limited number.

Thus regarding them, we may make several classes of cooperating causes, according, first, as the causes we consider are like or unlike, and second, as they operate successively or simultaneously.

Cooperation of Like Causes in Succession.

An instance of like causes cooperating in succession to produce a certain effect is seen when a nail is driven home by repeated blows of a hammer. Each blow produces a certain effect on the nail, and drives it further in. In a sense, and from one point of view, it is the final blow only that drives the nail home; but if it is more convenient for any purpose to contemplate the operation as a whole, then we may regard, not each blow as driving the nail for a certain distance, but the whole series of blows as causes cooperating in producing the complete effect of driving the nail home.

Actions may be like in kind though they are unlike in sign. The action of paying money into the bank is like in kind to the action of drawing money out of the bank, since they are both transfers of money with reference to the bank; but they are unlike in sign, the one kind adding to the balance and the other diminishing it; but the two causes cooperate in succession to bring about the result, the amount of the bank balance.

Simultaneous Cooperation of Like Causes.

The flow of a large body of water from the upper reaches of a tidal river may coincide with an unusually high tide to produce in the lower reaches a flood, that would not have occurred but for the simultaneous cooperation of the two causes. The simultaneous rush of all the passengers to the side of the boat may cooperate to make the boat capsize. If a bullet or a bird flies across in front of a photographic camera at the moment the shutter acts, an image of the flying object will be formed upon the plate. If the actions are not simultaneous, no such effect will be produced.

Indifferent Cooperation of Like Causes.

Like causes may cooperate to produce an effect or a result independently of whether they act successively or simultaneously. If one force acts upon a body so as to move it to the north, and another equal force acts upon it for an equal time so as to move it to the east, the effect will be that the body will reach a certain point to the north-east, which will be the same whether the forces act simultaneously or in succession. If we add the two components of a Seidlitz powder to a glass of water, the effect is the same whether we add them simultaneously or successively.

Successive Cooperation of Unlike Causes.

When unlike causes cooperate in succession to produce an effect, it is almost always necessary that they should operate in a certain order; and unless this order of succession is strictly observed, the effect will not be produced. The great majority of effects and results that are produced by human agency are of this class. When a thing is to be made, the materials must first be provided, and then one operation after another is followed in a certain order, and the effect and the result are looked upon as due to the cooperation of all these processes. When bread is to be made, the flour and water are first provided, then the dough is mixed, then it is leavened, then kneaded, then allowed to rise, divided, and baked; and these operations must follow one another strictly in this order if the effect is to

be produced. The final effect, the production of bread, is due to the cooperation of the various causes in orderly succession. If any one is omitted, or done out of its turn, or bungled, the effect is spoilt, the result is a failure. And so whenever anything is made by art of man, it is made by certain actions in orderly succession, and the whole series of actions cooperate to produce the thing made. There is actually no break in the long chain of causes, direct and indirect, stretching back indefinitely into the past; nor in the long chain of effects and results stretching forward from the moment the thing was made; but the beginning and ending of the making form convenient artificial or conventional boundaries to the section of the chain to which we limit our contemplation. We must limit the scope of our contemplation, because of the limitation of our powers, which cannot grasp an indefinite length of chain; and boundaries must be placed somewhere; and the boundaries fixed by the beginning and ending of the making of a thing are apt for our purpose. In contemplating causes, no less than in every other operation of mind and body, we have a purpose in view, and it is their indifference to purpose, and their ignoring of it, that render the speculations of the philosophers described in the first Chapter so curiously detached, irrelevant, and pointless. Our purpose in investigating how a thing is made, or comes to be, is to make it or prevent its being made, to cause it or help it to be, or to prevent or hinder it being; or in any case to get some advantage out of our knowledge, even if it is only the advantage of satisfaction in knowing more than we did before. The only causes we need take into consideration are those that answer our purpose, whatever that may be: to consider more would only lead to confusion and embarrassment. That is why, in grouping together as cooperating causes the actions whereby a thing is made, or comes to be, we fix an arbitrary limit beyond which we do not at the moment go. We stop short at that stage, not because we imagine that the causes began at that stage, but because it is among the causes subsequent to that stage that we expect to find those that we can initiate, facilitate, hinder, or destroy. For the purpose in view, the group is a natural group, and the limits are convenient limits, and none the less so because for some other purpose we may find it desirable to extend or to contract them.

Simultaneous Cooperation of Unlike Causes.

Unlike as well as like causes may cooperate simultaneously or contemporaneously to produce an effect which, but for their simultaneous or contemporaneous cooperation, would not have been produced. Plants will not thrive except under the combined action of light, warmth, and moisture. Without light they will grow, but they will not thrive. Without some degree of warmth, varying with the nature and habits of the plant, it will not thrive, or even live; neither will it thrive if desiccation is carried beyond a certain point, or live if it is carried beyond a certain further point. Iron rusts under the simultaneous cooperation of moisture and of oxygen. In dry air it will not rust, though constantly in contact with oxygen. Immersed in water free from dissolved oxygen it will not rust, although it is kept constantly wet. It requires the simultaneous operation of the two causes to produce the effect. A man who refuses to do a thing under threat of punishment for non-performance, and refuses to do it for reward, may yet be induced to do it by combining the threat of punishment with the promise of reward. When a glass tube is held horizontally in a flame until it softens, it will bend; and the bending is the effect of the cooperating action of heat and gravity acting simultaneously. The running of a motor car, the action of an engine, are the effects of numbers of causes acting contemporaneously.

Indifferent Cooperation of Unlike Causes.

Finally, unlike causes may cooperate to produce an effect when it is immaterial in what order the causes act, or whether they act simultaneously or in succession. A business firm may be ruined by the cooperation of the defalcation of a clerk and the failure, either at the same time, or before, or after, of a debtor for a large amount. A man's death may be due to the cooperation of several diseases, which would have effectually killed him in whatever order they attacked him, together or successively. Rain and frost combine to produce the fall of a mass of earth from a cliff, and in what order they act upon the cliff is immaterial.

V. THE LAW OF UNIVERSAL CAUSATION.

We are now done with the first of Dr. Fowler's propositions, and may consider the second, that every event has a cause. This is what is known as the Law of Universal Causation, and not only do logicians commonly confuse it, as Dr. Fowler points out, with the definition of cause, and with the Uniformity of Nature, but also it comprehends within itself four distinct problems which are usually confused together. They are as follows:—Does everyone believe that every event has a cause? If so, what is the warrant for the belief? Is it true? and How do we come by it?

In the first place, what is meant by an event? I think we may say without fear of objection that an event is that which happens, and inevitably implies a change; and as we have seen, the idea of change is necessarily bound up in the idea of effect. But changes are not the only effects. The prevention of change equally demands a cause for its existence; and, with some straining of the sense of words, unchanges may be included in events. Taking this to be the meaning of event, then it is evident that events are synonymous with effects; or, if unchanges be excluded from the denotation of events, then event is synonymous with one of the two classes of effect. The first question then becomes Does everyone believe that every effect has a cause? or Does everyone believe that a particular kind of effect has a cause? It seems to me that these questions must necessarily be answered in the affirmative. Effect implies cause, as husband implies wife, or any other relative implies its correlative. They are of course separable in thought, as, indeed, they are separable in fact, but, being correlative, their constant association in fact cannot be denied.

Moreover, I think there is abundant evidence that not only human beings, but many of the lower animals also, assume causation for every change which is a change to them—which is appreciated by them as change. Horses shy, dogs bark, birds and animals of various kinds rush away, when events occur to which they are unaccustomed, that is to say, which are out of their ordinary routine, and to them imply change. And I think we may safely assume that when horses shy and dogs bark at such things they do so because they apprehend danger, which

is as much as to say that they have causation in their minds. They apprehend the causation of harm to themselves. In the same circumstances all timid animals either bolt, or conceal themselves, or behave otherwise in a way that indicates that they apprehend danger. In all such cases the change is viewed as the effect of some cause, and the cause of that effect may produce other effects, and effects detrimental to the witness. Of all the changes in surroundings that excite in both animals and man the danger reaction, none is more potent than an unexpected noise; and no one apprehends danger from noise. The apprehension is that, as there is a noise, there must be an agent to cause the noise, and that what has caused this effect may cause other effects. I think therefore that the evidence is that every man does believe that every event has a cause.

This opinion is corroborated by considering the way by which we come into possession of it. I do not say that it is the only way, but I do not think it can be disputed that the chief source of this belief is as follows:—Man, and all his ancestors throughout an immeasurable past, have lived by action; and every act of theirs has been an instance of causation. It has been an action on something, and has produced or prevented a change in the thing acted on. It has been a cause, and has produced an effect. Hence the notion of causation is in every individual of very early origin, and with respect to his own action is inescapable and perpetual. Contemporaneous with this enormous body of positive experience, is the negative experience, equally inescapable, and equally perpetual, that we cannot produce or prevent change in anything without acting on that thing, either directly or indirectly. Hence experience, from the dawn of consciousness to its last oblivion, perpetually enforces upon us the conviction that change or prevention of change cannot occur without action of or on the thing changed; in other words, that every event has a cause. I think, therefore, that the evidence warrants us in saying that everyone who is capable of forming the notion of causation does believe that every event has a cause, and that he derives this belief from experience. It may be well to point out that though I hold the empirical origin of this belief, I do not found it upon the supposition that the will is the cause of bodily movements.

Whether this is or is not a case of causation, it does not enter into the demonstration.

The next question is, Granted that we do entertain this belief, what is our warrant for it? The warrant has already been indicated. It is in experience. It is experience repeated with incalculable frequency without a single contrary instance. When I say without a single contrary instance, I do not mean that in every case of change or prevention of change we are able to assign a particular cause, or identify the cause; that of course would be directly contrary to experience. I mean that in no case of change or prevention of change that has ever occurred in experience are we able to exclude a cause, or to be certain that no cause has acted. As I have said elsewhere, this is the conclusive test of truth for us—that conduct founded upon a supposition never brings us up against experience that contradicts the supposition. This is the highest warrant we can have. Granted that the experience is obtainable, granted that actions on the supposition are incalculably numerous and diverse, then the fact that experience has never shown the supposition to be false, not merely warrants us in believing that it is true, but compels us to believe it is true. The belief is inescapable; and however strongly we may in words deny it, the first time we act we shall prove our belief in it by acting upon it.

The third of the four questions put at the beginning of this section was Is it true? Apart from our belief in it, is it true that every event has a cause? After the foregoing discussion, this question ceases to have any meaning. If we have in support of a supposition, and based upon it, incalculably numerous experiences, not one of which has ever contradicted the supposition, then *for us* that supposition is true. It is certain. We are precluded from doubting it. We may put together the words expressing a doubt, but those words have no answering relation in our minds. That every event has a cause is true in the sense that we cannot doubt it. Whether it is noumenally true we cannot know, and it would not matter if we did. It is true for us. It is true as far as we are concerned. To ask whether it is really true is to ask whether there is a higher degree of certainty than certainty itself—whether that which is true for us may not be false in some sense which we cannot clearly conceive, and with which

we are not concerned. The importance of knowledge is its influence upon conduct; and in the influence they respectively exert upon conduct there is no appreciable difference between that which is universally true to all men, at all times, in all places, and that which is noumenally true.

VI. THE UNIFORMITY OF NATURE.

The Axiom of Causation.

We are now arrived at the third of those propositions which Dr. Fowler justly says few writers have not more or less confounded, that the same cause is always attended with the same effect. Dr. Fowler calls this the Law of the Uniformity of Nature, and the title may as well be retained, though other writers use it in other senses. In this case again there are four different problems comprised in the one proposition; that is to say, Do men universally believe that the same cause is always attended by the same effect? If so, How do they come to believe it? Is it true? and What is their warrant for believing it?

Does every man believe 'that the same cause is always attended by the same effect'? This is the way in which the problem is stated by Dr. Fowler, but Mill puts it differently, and few writers seem to appreciate the difference. Mill puts it that every consequent has an invariable antecedent; by which he probably means that the same effect is always due to the same cause; which is the converse of Dr. Fowler's problem; and as we have seen, Mill says this although he has a whole Chapter on the Plurality of Causes, by which he means that the same effect may be due to very different causes.

It is clear that the answers to both of these questions must depend upon the definitions that we adopt of cause and effect, and will be very different if we adopt one definition from what they will be if we adopt another; but most of all they will be influenced by our definition of the word 'same,' which most writers on this subject, I think I may say all, interpret so that it includes 'different.' It is perhaps this uncertainty about the meaning of the chief terms employed that is responsible for the differences of different writers on the subject.

Some assert that Nature is uniform ; some deny that Nature is uniform ; some neither assert nor deny it ; some, like Mill, both assert and deny it ; and few of them mean by it the same thing. In this chaos I shall follow Dr. Fowler, who does at any rate say clearly what he means in this, as in most things.

His reading of the Law of the Uniformity of Nature is that the same cause is always attended by the same effect. Is this true? As I have already said, it depends on what we mean by the chief terms employed. If a cause means the invariable antecedent of an effect, and if an invariable antecedent means an antecedent that is the same in every case, then whether or no the same effect always is attended by the same cause, it does not follow that the same cause is always attended by the same effect, and Mill's Plurality of Causes forbids us to suppose that it does. In Mill's sense of cause, therefore, Nature is certainly not uniform in Dr. Fowler's sense. Whether it is uniform in Mill's sense we cannot tell, for Mill muddles up the Uniformity of Nature with the Law of Universal Causation. To Mr. Welton, cause and effect are the same thing, and in this meaning of the word 'cause' of course Nature is Uniform, for the same cause must always be attended by itself, which is the same effect ; and the same effect must always be attended by the same cause—by itself. Professor Karl Pearson denies the existence of both cause and effect, but yet his expressions 'a routine of perceptions,' 'a routine of experience,' 'a routine of sense impressions' appear, when taken with their context, to mean what other writers mean by the Uniformity of Nature. If, however, there is no cause and no effect, of course there can be no Uniformity of Nature in Dr. Fowler's sense. Mr. Bertrand Russell's statement of 'causality' includes the assertion that there is a constant relation between the state of the universe at one instant, and a certain rate of change at that instant. The constancy of the relation would seem to imply that the nature of the universe is uniform ; but as Mr. Russell denies that the law of causality (whether his own or only that of others I do not know) is anything but a relic of a bygone age, it would seem that he does not admit that Nature is uniform in Dr. Fowler's sense. All that Dr. McTaggart can conclude after an exhaustive discussion is

that it is impossible to prove empirically that the law does not hold universally. Here I will leave the authorities, and discuss the matter on the basis of my own definitions.

Does the same cause always produce the same effect? That is the problem we have to solve. According to my first provisional definition, a cause is an action. Does the same action always produce the same effect? Take the blow of a hammer for instance: does the blow of a hammer produce the same effect whether it falls on the head of a nail, or the side of a bell, or a man's fingers, or a bale of wool, or a sheet of water? Clearly, in this sense of the word 'cause' the same cause does not always produce the same effect, and Nature is not uniform. But this definition of cause was provisional only. It was subsequently elaborated into this: that a cause is an action upon a thing; and the question now becomes Does the same action on the same thing always produce the same effect? Again let us take our hammer and strike with it our sheet of water. The effect is a splash. Now let the same water be frozen, and let us strike it again. The same effect is not produced. It may be objected that the thing on which the cause acts is no longer the same thing, but it is quite arguable that it is the same thing. It is certain, however, that it is not for the purpose of the argument the same thing. Then in what respect does it differ? Liquidity and solidity are, for the purpose of the argument, passive states of the thing acted on by the cause, and according to the definition already given, a passive state of the thing acted on by the cause is a condition. It is evident, therefore, that the question we are discussing, Does the same cause always produce the same effect? must be answered in the negative unless we amend it by inserting a reference to the conditions; and the question ought to be put in the form Does the same cause in the same conditions always produce the same effect? But this is an instance of the fallacy erroneously called the fallacy of many questions, which should be called, as it is called in my *New Logic*, the fallacy of the previous question. It implies that a previous question, which has not been answered, has been answered. It implies that the same action can take place for a second time upon the same thing in the same conditions; and this is not only impossible, but is acknowledged to be impossible by many of those who insist that the same cause always, or as they say invariably, produces the same effect.

Πάντα ῥεῖ, 'All existence,' says Mr. Welton for instance, 'is continuous and uninterrupted transition,' and 'uniformity itself is not to be taken to mean resemblance. It is in identity alone, not in mere resemblance, that we can find a firm basis of inference.' But if all existence is continuous and uninterrupted transition, or change, it is clear that a state of things once passed can never in all respects be reproduced, unless time should flow backwards, and of this we have no experience; and it is a commonplace that the same state of things never is reproduced. To get the same effect, the same cause must act on the same thing in the same conditions, and the cause is never the same, the thing is never the same, and the conditions are never the same. Therefore *cadit quæstio*. In this sense, there is certainly no such thing as Uniformity in Nature.

Yet the aphorism that the same cause invariably produces the same effect, clumsily though it is asserted, and untrue though it is, is the adumbration of a truth, and of a most valuable truth. It is not true in any sense that the same cause invariably produces the same effect; but if we recognise what logicians are groping after, and put it into precise and accurate language, we can assert a very important truth, upon which all our methods but one of ascertaining causes are founded, a truth without which but few causes would ever be discovered. It is this, that *Like actions on like things in like conditions produce like effects*; and *The more nearly alike the actions, the things acted on, and the conditions, the more closely alike will the effects be*. We may put the same thought more concisely in the following aphorism:—*Like causes in like conditions produce like effects*.

I do not think this aphorism needs proof. I doubt whether it is susceptible of proof. It seems to me to be an axiom. As soon as its meaning is grasped, it claims and secures our assent. Its contradictory, if not actually inconceivable, is certainly incredible. Whether its truth is manifest *a priori* or is based upon experience I do not care to speculate. The universal experience of mankind goes to show that, whether of empirical origin or not, it is empirically true; and if we like to call it an instance, or an example, or a proof, of the Uniformity of Nature, I don't know that any harm will be done—or any good. We may, if we please, call it a proof of the Uniformity of Nature, just as we may call the axiom that things that are equal to the same thing are equal to one another, and the axiom that two

straight lines cannot enclose a space, proofs or examples of the Uniformity of Nature.

Whether it is or is not the principle of the Uniformity of Nature, or an example or a proof of this principle, the aphorism is the fundamental Axiom of Causation, and upon it all our reasonings about causation are founded, and all but one of our means of ascertaining causes are based. In practice it is one of the most important guides of life, and is employed continually throughout life by everyone, either in the fundamental form in which it has been stated, or in one or other of its very numerous variants and derivatives. Of these, that which is perhaps most frequently employed is the axiom *Like effects in like conditions are due to like causes*; but as I have said, the derivatives are numerous, and every one of them is of frequent application. It would be tedious to cite them all, but the following are samples, and we may, if we please, call each of them an instance or a statement of the Uniformity of Nature.

Like causes in like conditions produce like effects.

Like causes in unlike conditions produce unlike effects.

Unlike causes in like conditions produce unlike effects.

Like effects in like conditions are due to like causes.

Unlike effects in like conditions are due to unlike causes.

If like causes produce like effects the conditions are alike.

If like causes produce unlike effects the conditions are unlike.

And so on.

Summary.

There is no such thing as Plurality of Causes in Mill's sense. What he meant was that in different cases different causes produce different effects that have some element in common, and this common element he called the effect, and said that it might have many causes. His error was in generalising the effects without generalising the causes.

But every effect is due to a series of causes stretching back into infinity.

And this series is not single, but every effect requires both a cause and conditions, and the conditions are themselves the results of causes; every effect is therefore due to an indefinitely large number of series of causes converging on the effect.

The cause of a condition is an indirect cause.

The cause of a cause is a direct, but more or less remote cause.

The cause of an effect is that cause in which for a certain purpose we are most interested.

To produce an effect, causes may cooperate in any of the following ways.

Like causes may cooperate in succession, simultaneously, or indifferently.

Unlike causes may cooperate in succession, and then must preserve a certain order ; or simultaneously ; or indifferently.

The Law of Universal Causation has, in the books, several incompatible meanings. It appears to be indisputable that we believe that every event has a cause, and that this belief is shared with us by many of the lower animals. This belief is founded upon the constancy of our experience, and is true, or at any rate is inescapable.

The Law of the Uniformity of Nature, as stated in the books, is nonsense. Neither the same cause nor the same effect is ever repeated. The true Axiom of Causation is that Like causes in like conditions produce like effects, and the more closely alike the causes and the conditions, the more closely alike will be the effects. On this axiom all our reasonings with respect to causation are founded.

CHAPTER VI.

METHODS OF ASCERTAINING CAUSES.

WHEN we have discovered an action upon the thing changed or maintained unchanged, and have determined that the action precedes the change or accompanies the unchange, we have still not ascertained the cause ; we have only cleared the ground in preparation for doing so. The cause is not ascertained until we have established a necessary connection between the action and the effect. This is what Mill's Methods of Experimental Enquiry are designed to secure. Mill assumed, and the assumption is adopted from him by subsequent writers on the subject, that the only way to discover causes is by experiment, and that the only aim of experiment is to discover causes. Both assumptions are manifestly and transparently false, and are contradicted by everyday experience. Some of the methods described by Mill himself as experimental are not experimental, indeed he admits that one of them is not ; and some of the instances he gives of the determination of causes are instances of the determination not of the causes of things, but of their existence, or their nature.

Logicians as a rule know nothing of natural science except what they mug up for the purpose of finding instances wherewith to illustrate Mill's five methods, which he and they all call four. They have therefore no means of knowing whether these methods are used or not ; but they accept Mill's confident assertion that in scientific investigations these methods and no others are used. But though logicians know nothing of natural science or of its methods except what they learn from Mill, they cannot help, in common with the rest of the world, assigning causes for the various events they meet with in their daily lives ; nor can they help seeing that in thus ascertaining causes, none of Mill's methods is ever used. They naturally conclude that the methods of science and the methods of daily life are utterly and totally different ; that when a man enters his observatory or his laboratory he strips himself at the door of all the methods he is accustomed to use, and employs an

entirely new set, a set of methods that are mysterious, recondite, and complicated, that logicians regard with awe, and do not venture to criticise. To these methods they give the name of the Logic of Science, and they suppose that non-scientific people have to be satisfied with a different and very inferior Logic. This is all moonshine.

I assert, and the present chapter is designed to prove, that the methods by which scientific men ascertain the causes of those phenomena that are called scientific are precisely and exactly the same as those by which the cook ascertains the cause of the dinner being spoilt, and the child ascertains the cause of its toy being broken. I assert, and will presently prove, that the methods so clumsily and uncouthly described by Mill are in fact never employed; that they never could be employed, for they are absurd, and when applied to actual cases result in futility; and I assert that when we seek to ascertain the causes of things, and when we do ascertain them, we look for an action upon the thing on which the effect is produced, that is, on the thing changed or maintained unchanged; and we are guided in our search, as well as determined in our choice, by one or more of the following considerations:—

- I. Instant sequence of the effect on the action.
- II. Subsumption of the case in hand under a general law.
- III. Assimilation of the case in hand to a known case of causation.
- IV. Association of the action with the effect.
- V. Concurrent and proportional variation of the action and the effect.
- VI. Common rarity of the action and the effect.
- VII. Correspondence of a quality in the effect with a quality in the agent.
- VIII. Coincidence in space of an action or a condition with the effect.
- IX. Coincidence in time of the action with the effect.

The fifth of these methods, that of establishing an association between the action and the effect, is further divisible into four subordinate methods; so that altogether there are at least twelve methods of ascertaining causation; and these we may now proceed to examine.

I. INSTANT SEQUENCE.

When an action upon a thing is instantly followed by a change in that thing, we are irresistibly driven to conclude that the action is the cause of the change.

When a china cup falls to the ground and breaks at the instant of its impact on the ground, we do not need to witness 'two or more instances in which the phenomenon occurs' or 'two or more instances in which the phenomenon does not occur' before we can make up our minds that the action of the impact was the cause of the breakage. We are driven to the conclusion that this action was the cause of this effect; and the main, if not the only reason for our conclusion is the instant sequence of the effect on the action. As already said, the writers upon causation seem to think that causes never are attributed, and that there is no need for the discovery of causes, except in the laboratory or the observatory, or in matters that are called, with more or less justice, scientific. There was never a greater mistake. We are all of us engaged daily, hourly, and almost momentarily, in the ascertainment and attribution of causes; and it is much more important to each of us in our lives to attribute causation correctly in matters that pertain to our immediate welfare, than that we should ascertain the causes of the perturbation of a planet, or of the mimicry of butterflies. Among the means by which we ascertain causes in our daily work, the instant sequence of an effect upon an action is perhaps the most frequent, and is by no means the least important. Nor is the employment of this means confined to trivial matters of daily occurrence. It is just as important and just as trustworthy in the laboratory. When the chemist adds one clear liquid to another, and a precipitate is instantly formed, he concludes at once that the addition of the reagent was the cause of the formation of the precipitate; and he forms this conclusion because of the instant sequence of the turbidity of the liquid on his action in adding the reagent.

If we see a match applied to a thing, or a blow struck upon it, and that thing instantly explodes, we attribute the explosion to the application of the match or the striking of the blow; and this we do without any need of two or more instances in which the phenomenon occurs, and two or more instances in

which it does not occur. The instant sequence of the change on the action assures us that they are effect and cause. Anyone quite ignorant of military evolutions who should see the troops alter their formation immediately on hearing a bugle call, would instantly regard the call as the cause of the movement. If we pour oil into the bearings of an engine, and the engine instantly increases its speed, or if we do the same to a foot-lathe, and the lathe instantly runs easier, we have no hesitation in attributing the change of speed, or the easier working, to the action of lubrication. If a horse's head is turned towards home, and he instantly improves his pace, we inevitably connect the improvement causally with the change of direction. If a bell rings or a whistle sounds in a factory, and the workmen all instantly drop their tools, we cannot help regarding the cessation from work as the effect of the sound; and similarly, when the air is thick with the chirruping of birds, if a gun is fired, instantly a dead silence ensues. We cannot help attributing the sudden occurrence of the silence to the report of the gun.

In some of these cases there may be other reasons which corroborate our judgment, and in fact our judgment of causation is seldom formed upon one method alone. Usually two or more methods corroborate one another, and the third method, the Method of Similarity, is seldom quite absent; but in others of the cases that have been instanced it is clear that the conclusion was based upon the instant sequence of the effect on the action, and upon no other method. One who had never before seen a galvanometer, and knew nothing of electric action, who should see the needle move the instant the key was depressed, could scarcely avoid attributing the change to the action.

Of course, the method is not infallible. In this imperfect world few methods are infallible. In some cases it needs corroboration or testing by some one or more of the other methods. But for all that, it is a method; it is a method that is constantly in use; it is a method that by itself may lead to a perfectly reliable conclusion; and it is a method that is not mentioned by any previous writer on the subject. Its fallibility is shown by the familiar instance by which a child is made to believe that he can cause the cover of a watch to fly open by blowing on it; but what is more important, the same instance shows how very early in life the conclusion is

thrust upon us, that a change that follows instantly upon an action is the effect of that action.

Mill and his commentators must each of them have used this method thousands of times, but they none of them record it, whether because it is difficult to put it into cumbrous and obscure language, or because they do not consider it sufficiently 'scientific,' I do not know.

II. SUBSUMPTION.

The second method of establishing a causal connection between an action and an effect is by subsuming the instance in hand under a general law. If this can be done, causal connection is assured, and neither Mill's Canons nor any other device is required to assure us of the necessary connection between the action and the effect.

Whether the tides were associated with the moon before the discovery of gravitation I do not know; but as soon as gravitation was discovered, and was applied to the action of the moon upon the seas, it must have become apparent at once that the moon's attraction must be the cause of tidal changes in the level of the seas; and if tides had never before been observed they would now be looked for. The action of the moon on the sea, and the sequent change in the level of the sea, are subsumed under the general causal law of gravitation, and this subsumption gives us the assurance that the action is the cause of the change.

When our waterpipes burst in winter, we find the cause at once by subsuming the case under the general law that water in freezing expands with immeasurable force; and by this subsumption the action of the frost and the bursting of the pipes are connected. When the cook goes to the cupboard for a pot of jam, and finds it is not there, she says at once 'Someone must have taken it.' She subsumes this instance under the general law that inanimate things do not move from their places without external agency. When the price of fish rises, and we hear of gales in the North Sea, we assume a causal connection between the action and the change, and we do so on the strength of the general law that, other things remaining the same, restriction of supply raises prices; and we know that gales in the North Sea do restrict the supply

of fish to this country. If the river overflows its banks, we assume, unless it is a tidal river, that there has been much rain in its catchment basin, and we make this assumption on the strength of the general law that *caeteris non mutandis*, the level of a river depends on the rainfall in the catchment area. If we find an object of gold or silver that shows signs of having been melted, we assume at once that it has been subjected to great heat, for it is a general law that great heat is necessary to the melting of gold and silver. If we find iron rusty, we assume that it must have been damp, for it is a general law that dry iron does not rust. When we are seeking the cause of a rare disease, and we find that it affects the members of several families in conformity with the laws of Mendel, we have no hesitation in concluding that the cause is hereditary transmission.

Neither in these cases do we look for two or more instances of the phenomenon, and ask if they have only one circumstance in common, nor do we look for two or more instances in which the phenomenon does not occur, and ask if they have nothing in common but the absence of the phenomenon. What we do is to subsume the case in hand as an instance under a general law applicable to such instances ; and if the subsumption is good, then the causal connection is made out to our satisfaction. This method, which is distinct enough in cases like the tides and the Mendelian inheritance of disease, is in other cases less pronounced, and graduates and merges into the next.

(*To be continued.*)

A Descriptive Record of the Conversion of a County Asylum into a War Hospital for Sick and Wounded Soldiers in 1915⁽¹⁾. By LIEUT.-COL. D. G. THOMSON, M.D., President of the Association, Officer in Charge of the Norfolk War Hospital.

LADIES AND GENTLEMEN,—I wish your President, especially as you are condemned to abide under his aegis for a second year, had been a man able to enthral you with some lofty theme appropriate to this time of stupendous events.

There is a trite saying, however, that it takes all sorts of people to make a world. We cannot all be a Hughlings-Jackson, a Mercier, a Maudsley, or a Savage, but many of us can act as scribes or chroniclers, and having an uneasy consciousness of my own limitations I have adopted that humble rôle in my recent appearances before you. I assumed it last year—how long ago it already seems!—in my Presidential Address, when I reviewed the history of Psychiatry during the last hundred years, and I propose, with your permission, to read you another chapter of Chronicles to-day.

I can lay no claim to this chronicle being of scientific medical interest, but my administrative bent of mind suggested that it would be proper and fitting that there should be some record on our tablets of what happened to many of our Public Institutions for the Insane in the time of the great European war of 1914 and onward.

If we look back to August, 1914, on the 4th of which month war with Germany was declared, it is not surprising that a maritime nation like Great Britain pictured to itself great naval engagements rather than battles by land, and that probably large numbers of wounded would be landed on our North Sea coasts from ships of war, whereas our naval hospitals existed on the south coasts far from the changed venue of action. This point of view prompted Norfolk, the nearest part of England to the German naval bases, and itself a maritime county, so early as the 5th of August, or the very day after the war was declared, to offer to the Admiralty 100 beds, and to erect tents for 150 more, in the Norfolk and Norwich Hospital.

This early and patriotic offer was accepted, but, as we now

know, not made use of, so that on the 3rd of September the offer was transferred to the War Office, and on the 17th of October the first convoy of 100 sick and wounded was sent to that Hospital.

We learn from this date when it first became evident that the Base Hospitals of the British Expeditionary Force in France, and the existing military hospitals in this country could not cope unaided with the great and sudden influx of wounded.

In the last week of October, or shortly after the Norfolk and Norwich Hospital received its first convoy, there is evidence that the War Office became seriously concerned as to the disposal of the large numbers arriving from the battles of the Marne and Aisne, for all public asylums in England and Wales received a letter from the Board of Control stating that the War Office would be glad to have knowledge of those asylums in which facilities could, if required, be obtained for the treatment of wounded soldiers, and offers of fifty beds and upwards were asked for. The Norfolk County Asylum replied on November 23rd to this inquiry by offering 100 beds, the plan I recommended to my Committee and approved by them being to vacate one block of buildings at the extreme western end of the Main Asylum, which could be easily cut off from the Asylum generally, and the seventy patients in which could be distributed throughout other wards of the Asylum. On the 15th of December the Board of Control wrote that, so far as they could ascertain, no actual urgency in this matter existed at present, that it seemed unnecessary at the moment to put in motion any definite arrangements for setting apart accommodation for wounded soldiers, and that they were merely collecting information as to possible accommodation in the asylums for sick and wounded. This corresponds with the period of comparative inaction at the western front during December and January.

Towards the end of January, 1915, there was a very general impression that the Allies contemplated an advance against the enemy in the spring, that such an advance would be very costly, and that it would be necessary to provide additional hospital accommodation on a large scale, whereupon the War Office invoked the assistance of the Board of Control, the Local Government Board, and the Board of Education, all Government Departments controlling institutions, asking them to provide at least 50,000 beds.

Accordingly, on January 29th, a letter was received from the Board of Control, expressing a desire to use determined efforts to provide 15,000 beds in asylums by clearing some asylums entirely of their ordinary patients, and distributing them in other asylums. On February 1st a preliminary conference was held at the Offices of the Board of Control, attended by Drs. Bolton, Cassidy, Goodall, Kidd, Macdonald, Spence, and Thomson, whereat the Commissioners outlined the scheme they had in view, *viz.*, to hand over to the War Office certain asylums in the neighbourhood of large towns, where operating surgeons would be readily available, evacuating these institutions of their usual patients, who would be sent to neighbouring asylums. This scheme was generally approved by the Medical Superintendents present, and, of course, many difficulties which naturally and at once occurred to them were mentioned, *inter alia*, the safeguarding of the position and interests of the asylums staffs, the financial arrangements as between the War Office and the asylums taken over on the one hand, and as between the vacating and receiving asylums on the other. However, the Commissioners intimated that this was merely a preliminary conference, and that those matters would be debated at a subsequent meeting.

This latter was held at the deputation room at the Home Office, under the Chairmanship of Sir William Byrne, on February 8th, and there were present members of the Commissioners of the Board of Control, the Chairmen, Clerks to Visitors, and Medical Superintendents of about twelve county and borough asylums.

Sir William Byrne described the scheme of his Board for providing in the asylums 15,000 beds for sick and wounded soldiers, as follows: He proposed that the public asylums of England and Wales be divided into nine groups, *viz.*—

Group 1.—Northumberland, Newcastle-on-Tyne, Durham, Gateshead, Sunderland, Cumberland, York City, Clifton, and Middlesbrough.

Group 2.—Wakefield, Wadsley, Menston, Scalebor Park, Storthes Hall, Beverley, Hull, Bracebridge, Kesteven, Notts, Nottingham, Leicester and Rutland, and Leicester City.

Group 3.—Lancaster, Rainhill, Prestwich, Whittingham, Winwick, Chester, Parkside, Denbigh, Derby County, and Derby City.

Group 4.—Stafford, Burntwood, Cheddleton, Salop, Warwick, Winson Green, Rubery Hill, Oxford, Northampton, Powick, and Barnsley Hall.

Group 5.—Norfolk, Norwich, Suffolk, Ipswich, Brentwood, Severalls, West Ham, Cambridge, Three Counties, Herts, and Bucks.

Group 6.—Gloucester, Hereford, Monmouth, Newport, Glamorgan, Cardiff, Carmarthen, and Brecon and Radnor.

Group 7.—Hants, Portsmouth, Berks, Chichester, Hellingly, Barming Heath, Chartham, Canterbury, and Isle of Wight.

Group 8.—Dorset, Wilts, Wells, Cotford, Devon, Exeter, Plymouth, Cornwall, and Bristol.

Group 9.—Banstead, Bexley, Cane Hill, Claybury, Colney Hatch, Hanwell, Horton, Manor, Colony, and Long Grove.

That one asylum in each Group be offered to the War Office, *viz.*: Bristol, Cardiff, Chichester, Newcastle, Norfolk, Wadswley, Winwick, Horton, and Rubery Hill, and that all the patients in these asylums, numbering some 12,000, be removed, transferred to or boarded out in the other asylums of the respective groups. Assuming the receiving asylums to be full they would under the scheme be overcrowded to the extent, in round numbers, of ten per cent., or in an asylum of twenty wards by five patients per ward, no serious hardship for staff or patients under national emergency.

Sir William Byrne urged the chairmen of committees of public asylums present to convene a meeting in their respective areas of the chairmen, clerks to visitors, and medical superintendents of asylums of each group, to discuss the scheme proposed, and come to mutual agreement on the provisions.

As a basis of discussion at these meetings he enunciated several main points, which a day or two later were circulated in the following memorandum :

Suggested Arrangements.

(Vacating certain asylums for War Office use.)

(a) No asylum should seek to make any profit out of patients received from a vacated asylum.

(b) The rate of maintenance charged by a receiving asylum to a vacated asylum for patients sent from the latter asylum

should be that of the ordinary pauper rate obtaining for the time being in the receiving asylum.

(c and d) Details referring to private patients.

(e) That the entire clerical staff, the laundry, kitchen, and farm employees, and the steward's staff, and as many as possible of the nurses and attendants and of the medical staff of the vacated asylums should remain, and be utilised by the War Office, and that wherever possible the Visiting Committees of these asylums should, in conjunction with the War Office, undertake the equipment of the asylums so far as may be necessary for the purpose of a military hospital, augmenting the staff with a sufficient number of surgeons and trained hospital nurses. The clearing of the asylum of all patients, except those who are gravely ill, and perhaps a certain number of farm working patients, should be absolute.

(f) The Board further think that contracts, transfer orders, notices of admission, reception orders, medical statements, etc., rendered necessary by the scheme, should be simplified as much as possible. They will be glad to consider any suggestions made to them in relation to this.

(g) All documents required for the transfer of patients, and all arrangements with railway companies for the transfer of patients, should as far as possible be made well in advance.

(h) As speedily as possible after the termination of the war, all patients should be returned to the asylums they vacated.

After various questions had been put and replied to from the chair, and discussion, the meeting pledged itself to approval of the Board's scheme, and undertook to hold the necessary local conferences. In regard to item (b) on the memorandum the meeting expressed itself against any charge being made for rent or interest on capital.

On leaving this Conference I was "given furiously to think." First to arise in the mind was the overawing national emergency necessitating such unexpected and revolutionary proceedings, then the natural pride in actively assisting, and the desire to do so, in the national need, added to this the personal feeling that my life's occupation and interests were slipping from under me, and that somewhat late in my career I was to face and undertake new and unfamiliar responsibilities. Since passing the pensionable age-Rubicon I have at times pictured the painful but inevitable process of some day bidding adieu to

my patients, but never in my wildest dreams did I picture them all filing out of the Asylum bidding me farewell and leaving me stranded and alone.

The next step in carrying out the scheme of the Board of Control was the holding of the local conferences, calling together the representatives of the asylums of each particular group, and inducing agreement among them to vacate one asylum in the group, and to receive the patients so removed in the remaining asylums of the group.

The first conference of the kind was held by the East Anglian group on February 17th, 1915, in the Shirehall, Norwich. This was attended by the chairmen of the various Committees, Clerks, and Medical Superintendents of the eleven asylums of the group, and by Dr. Marriott Cooke, a Commissioner of the Board of Control. It was resolved unanimously to approve of the scheme in general, and of its local application, whereby the Norfolk County Asylum was to be emptied, and its 1,050 patients received into the nine other asylums in the group. An exception was made in the case of the Norwich City Asylum, which offered to take all the cases of insanity occurring or arising in the county. This arrangement was welcomed by Norfolk, as from the patients and their friends' point of view, as well as that of the Guardians and their officers, it was a great boon to have the Norwich City Asylum, which is as near and as convenient of access to them as the County Asylum at Thorpe itself. Further, that as these cases accumulated, the incurable residuum would be drafted off to other asylums of the group from time to time.

The various headings in the memorandum given above were then discussed, and (a) (b) (c) and (d) were agreed to, it being understood that the receiving asylums should charge the vacating asylums the actual cost of maintenance, and that no charge should be made in respect of the Building Fund, that is to say rent, upkeep of buildings, and interest on capital. Items (e) (f) (g) and (h) were left to be settled between the War Office, the Board of Control, and the Norfolk County Asylum, so as to avoid the inconvenience and difficulty of holding further conference.

It must be said that this Conference carried out its object with commendable expedition, unanimity, and patriotism, and touched but lightly on the barbed wire that lay in its path, such

thorny questions as cost *v.* charge, the charging of rent by receiving asylums, and last, perhaps not least, where so many patriotic spirits were present eager for more active work in the assistance of the country, no cavil or jealousy at the selection by the Board of Control of the particular asylum to be vacated.

It must not be supposed that to so many men, well versed in the administration of asylums, schemes alternative to that of the Board of Control had not suggested themselves, *e.g.*, in our then state of knowledge of the whole subject it appeared to some that a less drastic and thorough emptying of one asylum and congestion of others might have sufficed, resulting in less general upheaval and cost, by devoting some detached block, say, of one hundred beds, at every asylum in the county, to military hospital purposes. The question of sentiment, however, was strongly against placing our sick and wounded soldiers in even wholly separated parts of the same institution as the insane, in fact, any advice tendered to the War Office as to the economic policy of retaining women working patients, for kitchens and laundry, was met with decided refusal, the only concession made in this direction being that a few farm and garden working patients might be retained, if they could be housed at some separate farmhouse or other building. Now that I am familiar with all the military requirements as to records, invaliding Boards, and the endless clerical and administrative dealings with the invalid soldier, and also with the necessarily elaborate provisions for operative and X-ray work requisite for military surgery, I am fully convinced that the scheme planned by the Board of Control is far and away the best.

General principles having been determined, it now only remained to carry them out. It was intimated to us on March 2nd that the matter was urgent, that the War Office hoped to be in possession of the 15,000 beds at the nine receiving asylums in six weeks time, *i.e.*, by April 15th, and that with this end in view certain outstanding matters would be adjusted as soon as possible, such as the details of the reimbursement which the War Office undertook to make to the asylums, and the suggested forms of contract between the vacating and the receiving asylums.

On February 18th a conference of Medical Superintendents of public asylums was held in the Association rooms in London, and various matters bearing on the subject were discussed.

On March 10th the two following documents, "A" and "B," were sent to the asylums by the Board of Control.

"A" is the scheme prepared by the Board of Control as to the general terms of the conversion, and the details of reimbursements which the Board of Control state the War Office will undertake to make to vacating and receiving asylums. Of this scheme the War Office, we were informed, generally approved, but, in addition, the Army Council sent out a document or statement of their own, Document "B," setting out various points, so as to arrive at a clearer understanding, and the Board of Control gave it as their opinion in a letter of March 10th that there was nothing conflicting in the case as stated in Document "A" on the one hand, and in Document "B" on the other.

In the letter quoted above, covering these two documents, we were assured how much the Army Council appreciated, not only the willingness of the authorities and staffs of these institutions to place them at their disposal, but also the hearty co-operation of the authorities and staffs of all the receiving asylums, without which they realised the scheme would not have been practicable.

(A) USE OF ASYLUMS AS MILITARY HOSPITALS.

Scheme, prepared by the Board of Control, for the General Administration of the vacated Asylums, and the details of the reimbursement which the War Office undertake to make to the receiving and vacated Asylums.

I. Charges arising from the maintenance and treatment of sick and wounded soldiers in asylum buildings, which the Army Council undertakes to meet.

1. Vacated asylums :

- (a) Charges in connection with buildings and equipment.
 - (i) Necessary adaptations of the buildings for hospital purposes.
 - (ii) Maintenance and repairs of premises.
 - (iii) Reinstatement of premises at end of occupation by Army Council.
 - (iv) Additional equipment found to be necessary, *e.g.*, hospital requirements, extra beds, etc.

Note.—All extra equipment purchased at the expense of the War Office which remains in stock at the conclusion of the war, is to be regarded as the property of the War Office, but may, if the asylum authorities so desire, be taken over by them wholly or in part at a valuation.

(b) Charges in connection with the maintenance of staff and of soldier patients.

- (i) Salaries and wages, including fees to surgeons and other experts,

and remuneration of other persons called in to supplement ordinary staff.

- (ii) Victualling on scales laid down by Army Council.
- (iii) Uniform for staff and clothing for patients.
- (iv) Furniture and bedding. (Renewals and repairs.)
- (v) Medicines, surgical appliances and instruments.
- (vi) Fuel, lighting, washing, and other necessities.
- (vii) Rates, taxes and insurance.
- (viii) Incidental expenses, including travelling, burials, etc.

2. Receiving asylums :

Charges in connection with the maintenance of lunatics.

- (i) Additional weekly cost of maintenance, if any.
- (ii) Equipment and stores required for additional numbers and extra cost of maintenance and depreciation.
- (iii) Any necessary slight structural alterations necessitated by increased numbers, extra wear and tear and reinstatement of premises.

3. Cost of all necessary travelling and conveyance of lunatics.

II. General arrangements.

1. The War Office will be solely responsible for the medical care and treatment of the soldiers and the management of the hospital.

2. The asylums will be handed over as going concerns with the whole of their staff, medical, engineering, stores, farm, etc., and such part of the nursing and attendant staff not needed to accompany the patients to the receiving asylums. The portion of the nursing staff retained at the asylum should be that portion best suited to take up or assist in the care of the sick and wounded.

3. The War Office will appoint the additional medical and nursing or other staff required for the hospital. The Visiting Committee and the Medical Superintendent will generally, from their local knowledge, be able to suggest suitable persons for employment in addition to those already in War Office service.

4. Subject to the directions of the Committee, the Medical Superintendent is the head and director of the asylum administration, and in most instances, no doubt he will be appointed by the War Office to be the officer in charge of the hospital. If so appointed he will continue to exercise the general control over the institution and its staff and working, for which his experience specially qualifies him. The other medical officers of the asylum will ordinarily be qualified and willing to become part of the medical staff of the hospital, and to share the duties with the additional professional staff sent by the War Office.

5. The whole of the asylum staff is in the employment of the Visiting Committee, by whom they are appointed and by whom they can be dismissed. They are in established pensionable service, and it is necessary that their asylum service should be unbroken, except for misconduct. If in any instance it is expedient that the head of the hospital should be an officer other than the Medical Superintendent, it is desirable that he should delegate the lay administration of the institution to the Committee which, from experience and local knowledge, is the authority best qualified to carry it on. The Medical Chief will thus be relieved from many laborious administrative tasks. The delegation may be subject to such conditions as are thought reasonable.

6. The War Office has decided that military rank shall be conferred on the members of the medical staff. If an officer of higher rank than the Medical Superintendent is sent to the hospital, it is desirable that the general administration of the institution should be delegated to the Medical Superintendent, or at any rate in practice left in his hands. As regards the male attendants, it may be thought necessary, as has been done at the State institution at Moss Side, to incorporate them in the Red Cross organization.

7. The Committee will continue to make contracts for supplies, and otherwise carry on the business side of the administration, will open a fresh banking account from the date when the War Office are in possession, and the Clerk will each month present to the War Office an account, certified as the War Office may require, of the expenditure incurred. These accounts will be audited as heretofore by the asylum auditors with any additional precautions which the War Office may require. They should be transmitted to the War Office through the Board of Control who, after such inquiry—if any—as they think necessary, will append their certificate that the claim is a proper one to be made on the War Office.

The Committee will be informed by the War Office what stores, etc., can be supplied by that Department, and what must be contracted for locally.

The necessary funds to meet expenditure on structural alterations, additional equipment, expenses on travelling and conveyance, etc., will be advanced by the War Office as soon as a decision is come to that an asylum is to be vacated.

Claims for such advances should be transmitted through the Board of Control.

(B) USE OF ASYLUMS AS MILITARY HOSPITALS.

Observations by the War Office supplementary to their general confirmation of the scheme prepared by the Board of Control:

1. Vacated asylums:

(a) Charges in connection with buildings and equipment:

(i) Maintenance and repairs of premises.

In case of considerable repairs constituting permanent structural improvements, the Board of Control will no doubt be prepared to advise to what extent credit can be given to the War Department for these in the final settlement.

(ii) Reinstatement of premises at end of occupation.

It is presumed that a complete inventory will be taken before occupation.

(iv) Additional equipment.

It is presumed that complete accounts will be kept of equipment furnished by, or purchased at the expense of, the War Department.

(b) Charges in connection with the maintenance of staff and of soldier patients:

(i) Salaries and wages.

It is presumed that the Visiting Committee will actually pay (at War Department expense) the present salaries of the retained asylum staff,

and any persons temporarily engaged, and that the War Department will pay direct its own officials. This is merely a matter of machinery, and will be pursued in the communication referred to in paragraph 7 below. The rates to be paid for any persons temporarily engaged will be settled by the War Office.

(ii) Victualling.

Presumably consumable stores taken over will be valued and the cost credited to the asylum authorities.

It is presumed that appropriate accounts of consumables, etc., whether supplied by War Department or purchased on their behalf by the asylum authorities, will be kept, and that these accounts will be available for inspection, if desired.

Medicines and medical and surgical equipment when not taken over with the asylum will be provided by the War Office or under arrangements approved by them.

Receipts generally.

It is presumed that the produce of asylum farms will be available for use, and that the War Department will be allowed credit for produce sold. Also that the War Department will receive credit for the grants received by the asylum authorities in respect of any harmless patients retained for work on farms or grounds, since they will be maintained out of general maintenance of which War Department is bearing the cost, and generally that any receipts arising out of the ordinary working of these institutions while they are in use by the War Department will be taken in reduction of the working expenses chargeable against the War Office.

2. Receiving asylums.

(i) Additional weekly cost of maintenance, if any.

It is presumed that the authorities of the vacating asylum will continue to draw their grants in respect of patients transferred, and of patients who would be sent there but for War Department occupation, that the vacating asylum will pay to the receiving asylum the weekly cost of maintenance therein, and that the War Department will refund to the vacating asylum the excess in cases where their grant is less than the weekly cost in the receiving asylum.

In cases in which the weekly cost is less, this Department would not propose that the saving should be taken into account unless the saving is of material amount, in which case the charge under (ii) below should apparently be abated.

(ii and iii) Equipment and stores required.

It is presumed that an account will be kept of the additional equipment, and that such equipment may be taken over on evacuation at a valuation as in case of vacating asylum. This Department will readily fall in with your views as to the manner of payment for these services.

General arrangements.

(2) If a portion of the staff is transferred to a receiving asylum, it is presumed that the salaries will not be a charge for the War Department.

(3) After "nursing" in line 1, add "or other."

(4) After "War Office" in line 3, add "under the General Officer Commanding-in-Chief of the Command concerned."

(6) Delete the first 3 lines and substitute, "If the War Office in any

given case should appoint an officer of senior rank to the hospital, it is desirable that the general "

(7) It is suggested that when an asylum is taken over, an advance be made by the War Department on the recommendation of the Board of Control, on the basis of a month's (or quarter's) estimated expenditure (plus initial costs in the first instance) and that periodical accounts should be rendered to the War Department through the Board of Control as suggested. A further communication will, however, be addressed to the Board of Control as regards the procedure in rendering accounts, but this Department will be prepared to make advances as soon as desired.

All these matters having been settled, the contracts between the vacating and receiving asylums committees were drawn up and signed, and it was now possible to set about transferring the patients from the vacating to the receiving asylums. To facilitate the procedure and clerical work attendant thereon the Board of Control issued the following memorandum of suggestions.

SUGGESTIONS OFFERED BY THE BOARD OF CONTROL IN ORDER TO SIMPLIFY THE MEDICAL AND CLERICAL WORK IN CONNECTION WITH EMPTYING CERTAIN ASYLUMS, WITH A VIEW TO THEIR USE BY THE WAR OFFICE. (MARCH 10TH, 1915.)

The Commissioners desire to simplify, as much as is compatible with safety, the work entailed in keeping the medical records, both at the moment of emptying the selected asylums (which, for brevity's sake will, in what follows, be denoted by "*V*") and at the time when the patients are returned to them from the grouped asylums (which will be denoted by "*R*"). With this object, they offer the following suggestions.

A. When transferring patients from V to R, send with them (a) the original reception orders (or copies in the cases of patients who had been received into V as a transfer); (b) corrected addresses of friends and relatives; (c) brief particulars as to character, e.g., whether suicidal, dangerous, epileptic, degree of supervision at night required, how employed, existence of any important physical disorder necessitating caution; and (d) in those instances in which V has adopted the loose-leaf system of case-book, the folios corresponding to the patients; these should be adequately secured, either in proper loose-leaf binders or other satisfactory means.

B. Notices to Board of Control of admission to R.—In the case of patients transferred from *V* to *R*, these need indicate only the patient's full name, date of reception order, date of admission to *R*, and evidence (if any) of recent injuries or severely impaired health.

c. Entries in Registers and Case-books.—(1) It is suggested that the statutory registers (civil, medical, register of discharges and transfers, and register of death) belonging to *V* be not closed, but continue to be entered up by the retained clerical staff of *V*, in the manner to be presently indicated.

(2) Each receiving asylum (*R*) to establish a simple form of register

of all the patients received from *V*, indicating name, date of reception order, dates for its continuation, date of admission to *R*, any other facts of importance thought desirable, and providing provision to record discharge or transfer (with particulars of such) or death (with cause thereof, verification by P.M., and other particulars).

(3) Each receiving asylum also to establish a loose-leaf form of case-book in respect of the cases received from *V*. This, in those instances where *V* already uses the loose-leaf system, will be made up of the loose-leaves sent from *V*; if *V* does not use this system, it should purchase a sufficient number of folios for its patients and send them, adequately secured together, to the several asylums (*R*) receiving its patients.

(4) That the frequency and amount of note-taking for these case-books should be left to the discretion of the medical officers; and that it be understood that adhesion to the Commissioners' Rules as to this matter will not be expected, so long as due care is taken to record really important facts as they occur from time to time.

(5) That on the discharge, transfer (elsewhere than back to *V*) or the death of a patient in *R*, received there at the emptying of *V*, a full entry be made on the case-book loose-leaf, comprising, besides the usual facts noted in a case-book, all particulars necessary to complete the columns in the corresponding register; that this loose-leaf be then sent to *V*, where the registers can then be duly filled in and the loose-leaf fixed in its appropriate place, either in the loose-leaf system or gummed in the case-book. The usual copy of notice of death should also be sent to *V*. The results of any *post-mortem* examinations, made in respect of any of these patients, could easily be made also on loose sheets, which would be sent to *V* with the above documents.

D. *On the re-opening of V.*—Items (*a*), (*b*), and (*c*), indicated above, should be sent from *R* to *V*, together with the case-book folios. Notices of re-admission to *V* would only require to be in the simple form set out in "B" of the above headings.

E. *Direct admissions to R which, under normal circumstances, would have been sent to V.*—It is suggested that it would not be expedient to make any attempt to modify the usual clerical procedure in these cases, as regards either their admission to *R* or their subsequent transfer to *V*, particularly if all the receiving asylums bore their proportionate share; if, however, one asylum in each group were selected for the purpose, a certain amount of clerical simplification might perhaps be possible.

Documents were made out at the vacating asylum for the transfer of the patients, in accordance with the suggestions of this Memorandum. Norfolk Board of Guardians were notified that on and after March 4th, 1914, the asylum would be closed for the reception of patients, and directing the Union to send all cases of insanity arising in their area to the Norwich City Asylum at Hellesden, that the patients belonging to a particular Union would be transferred to one or more of the asylums of the group, that the particular asylum to which each

patient had been sent would be notified later, and that all accounts in respect of maintenance would be sent in future to the Union from the vacating asylum, in this case the Norfolk Asylum, as heretofore.

Printed notices were also sent to one or more relations or friends of every patient notifying them of the intended transfer and destination, giving opportunity of daily visiting any day before the patient left. In some sixty suitable cases the friends were encouraged to make application for the patient's discharge under Sec. 79. The fact that fifty-three patients were discharged in this way relieved the pressure on receiving asylums by one-twentieth; a few of these were granted an allowance under Sec. 55 (1 and 2) which is being indefinitely prolonged. This is the only attempt I have ever made at the Scotch system of boarding out, which is said not to be a success in England, and probably it has only been a success on this occasion by reason of the fact that the friends of the patient were stimulated to make the effort to avoid the necessity for patients being sent out of the county.

Eventually the various parties of patients for the different asylums were made up, due regard being had to the various classes of patients, of which each party was constituted, *e.g.*, the recent, acute, sick, infirm, epileptic, turbulent, convalescent, and working. It was no easy matter to ensure fair and even distribution among the receiving asylums, regard even being paid to patients' predilections for particular asylums, near which, perhaps, lived some relative, as a recompense for expatriation.

When all the transport arrangements by road and rail had been made, the accompanying staff arranged for, all the documents, including each patient's "case" from the loose leaf case-books, made up and distributed, not at all so simple or light a matter as it sounds, parties of patients and staff began to leave on March 19th, and by March 31st, or in twelve days, 960, or an average of over 100 per week-day, were safely and without the least mishap or accident, transferred to the following places: Ipswich, Melton, Colchester, Brentwood, Aylesbury, St. Albans, Arlesley, Goodmayes, and Cambridge.

Forty patients remained, twenty-three permanently as farm workers and thirteen too ill to move till two or three weeks later.

The scenes on departure aroused varying emotions in myself, my medical colleagues, and the nurses. It was all interesting,

some of it most amusing, and much sadly pathetic. To many the asylum had been their home for many years, some for over fifty years, some since childhood; many even had never been in a railway train: the Norfolk is insular and homestaying, he rarely goes "foreign," as he calls the shires and even neighbouring counties, so it will be readily believed that the whole gamut of emotion was exhibited by the patients on leaving, ranging from acute distress and misery, through gay indifference, to maniacal fury and indignation. Personally I met with the experience of most asylum medical officers, *viz.*, that I did not realise the strong mutual attachment till it was severed. The great and pressing work now before one was to convert a set of buildings designed and well adapted for the insane into a hospital for sick and wounded soldiers, and that in a space of six to eight weeks.

At an interview with the Director General of the Army Medical Service, Sir Alfred Keogh, at the War Office, I learned in a general instruction that the asylum tradition, and character of the institution, was to be as completely transformed for the time as possible, and that everything in the way of the highest medical and nursing skill, and of appliances was to be provided.

The following are the former names and present approved names of the various converted asylums :

	Asylum.	Hospital.	Officer in charge.
1	Newcastle-on-Tyne City Asylum, Gosforth	The Northumberland War Hosp., Gosforth, Newcastle-on-Tyne	Col. G. G. Adams.
2	West Riding of Yorks County Asyl., Wadsley	The Wharfedale War Hospital, Middlewood, Sheffield	Lt.-Col. Vincent.
3	Lancashire County Asyl., Winwick, Warrington	The Lord Derby War Hospital, Warrington	Lt.-Col. Simpson.
4	Birmingham City Asyl., Rubery Hill	The 1st Birmingham War Hospital, Rubery Hill	Lt.-Col. Suffern.
5	Birmingham City Asyl., Hollymoor, Birmingham	The 2nd Birmingham War Hospital, Hollymoor, Birmingham	Lt.-Col. S. J. Thomson, C.I.E., I.M.S.
6	Norfolk County Asylum, Thorpe, Norwich	The Norfolk War Hosp., Thorpe, Norwich	Lt.-Col. Thomson.
7	Cardiff City Asylum, Whitchurch, Cardiff	The Welsh Metropolitan War Hospital, Cardiff	Lt.-Col. Goodall.
8	West Sussex Asylum, Chichester	The Graylingwell War Hospital, Chichester	Lt.-Col. Kidd.
9	Bristol City Asylum, Fishponds, Bristol	The Beaufort War Hosp., Bristol	Lt.-Col. Blachford.
10	London County Asylum, Horton, Epsom	The County of London War Hospital, Epsom	Lt.-Col. Lord.

The names of the special hospitals in connection with the Napsbury Asylum and the Wandsworth Asylum are respectively :

	Asylum.	Hospital.	Officer in charge.
11	Middlesex County Asyl., Napsbury, St. Albans	The Napsbury War Hosp., St. Albans	Major Rolleston.
12	Middlesex County Asyl., Wandsworth, near Tooting, S.W.	The Springfield War Hospital, Wandsworth, near Tooting, S.W.	Major Worth.

It will be seen from the above list, that an additional asylum, *viz.*, that of Birmingham City Asylum, Hollymoor, has been converted into a War Hospital, and that the London County Asylum, Horton, Epsom, has been taken over, instead of Long Grove, as originally intended.

As I write this, I hear that the Northamptonshire Asylum, Berrywood, has also been taken over by the War Department.

I propose in this descriptive record to deal, first, with the necessary structural changes involved in the conversion of an asylum into a military hospital, or if I offend in my terminology some of my younger colleagues, shall I say, a mental hospital. It will tend to conciseness if I take the principal changes *seriatim*, which were much more numerous and important than I ever anticipated, and cost altogether about £16,000.

(1) Doors : Every door in the asylum actuated by lock only, and there are hundreds, has to have an inside and an outside rim-lock or latch handle fitted ; it is not necessary to remove the existing lock, but if a spring lock, it must be put out of action.

Every door, or doorway, that won't easily admit a stretcher party must be removed or widened. The road or garden approaches to outside main entrances or doorways have to be so widened and curved as to admit long chassis'd cars, ambulance or private.

(2) Windows : All window locks or stops, upstairs and down, have to be opened or removed so as to allow of full opening of window sashes.

(3) Corridors and passages : These must all be tested practically by a stretcher party to ensure that such can pass easily

and without tilting the stretchers, the whole way from the main entrance to any bed in any ward in the hospital; this applies more particularly to staircases and landings. I was rather surprised that this could not be done in some even of the more modern staircases of the asylum, and I had to install three Waygood-Otis hand-power lifts at a cost of £150 each. At first I thought this could be avoided by putting stretcher cases on ground floor wards and "walkers" or "sitters" upstairs, but apart from this being unfair to the surgeons and nurses of first floor wards, it would not do, because a "sitter" may become at any time a stretcher case, with or without operation, and frequent ward transfers are impracticable. All this wide and easy access is necessary, not so much when taking in the weekly convoys as they arrive, as for the incessant traffic between the wards and the operating and X-ray theatres.

(4) The Wards: The actual dayrooms and dormitories of the asylum need no structural alteration; the larger and more plainly rectangular they are the better, so that a large barrack-like plain ward of from forty to sixty beds, without bays or recesses, makes the best hospital ward, whereas the smaller, cosier wards, well broken up into bays and recesses, so suitable for insane patients, as in the old main asylum at Thorpe, were not so serviceable, and cut up most uneconomically for bed space.

At the Norfolk War Hospital, a small ward on each side of the "centre" of the main hospital had to be vacated, so as to make room for various administrative departments, for which there was no accommodation in the "centre," such as Registrar's office, his clerks' office, dental room, electro-therapeutic room, chief orderly's room, inspecting officer of auxiliary hospitals office, lady medical officer's quarters, post office, inquiry office, etc. This involved the sacrifice of some fifty beds which would otherwise have been available for soldier patients. Against this some twenty beds have been gained by the provision of open-air sleeping shelters.

I found by experience that only about one-third of the patients were on an average confined to bed, so that the retention of a dayroom or gallery, or some room in each ward, was necessary as a play, mess, or sitting-room for those able to be up. This being the case, I found the accommodation in beds amounted in round numbers to the same as in the pre-conversion days, *viz.*, 1,050, and that all the tables, chairs, and dayroom

furniture I had put away in store had to be brought back again, and that the pianos, bagatelle tables, and all the usual asylum dayroom amusements were invaluable.

As to the adnexa of the wards, however, it was a very different matter. All the sanitary spurs, containing baths and lavatories, were ample and suitable for soldier patients, with the additions of special bed-pan sinks and minor nursing fittings, but a considerable number of these essential conveniences had to be provided altogether away from the wards for the nursing staff. The sculleries, too, or ward kitchens, as the hospital people call them, had to be supplied with gas and gas stoves; gas also had to be laid into all the wards for heating ward sterilisers. I resented this as much as anything, having rejoiced fifteen years ago in abolishing gas and all its abominations in favour of electricity. A sitting-room for the Sister, or charge nurse of each ward, called the duty room, must be provided opening off, or close to, each ward. No attendants' or nurses' sleeping rooms opening off wards or galleries can be made use of for nurses' sleeping quarters, and this must be borne in mind by those asylum medical officers who contemplate nursing their male patients by women nurses.

Nurses may be housed in the following ways:

- (1) In the nurses' home, if there is one; in any case it will only be one-quarter large enough as regards single bedrooms.
- (2) By billeting the nurses out in neighbouring houses.
- (3) By dividing up wards into cubicles by partitions or screens; in my opinion an extravagant and undesirable method.
- (4) By building rows of hutments with or without adjoining mess and association rooms.

Numbers 1 and 4 were adopted at the Norfolk War Hospital, and I am more than satisfied, as are also the nurses, with the result. There are four rows of red-tiled hutments of fifty separate bedrooms each, well warmed and lighted, built in an adjoining field at a cost of £30 per bed; in normal times they would have cost probably one-third less. These hutments are entirely detached from the hospital building, but the additional mess and association rooms, which are also temporary buildings, open off the kitchen corridor. This arrangement obtains at each of our two hospitals, the main and the annexe.

In some converted asylums the entertainment hall has been utilised for nurses' mess, but so far I have been able to reserve

this most useful place for the entertainments, which are almost daily events. Cycle sheds to accommodate 250 cycles have also been provided. The existing asylum mess-rooms have to be given to the large additional numbers of house, kitchen, and laundry servants who have to be engaged, housed, and fed, to supplant the lost asylum patients' labour. All male attendants have been enlisted in the Royal Army Medical Corps and act as orderlies; there being no accommodation for them in the hospital they have found lodgings in the village and neighbourhood, and have been granted board money.

Quarters comprising mess-, ante-, and bed-room accommodation, had to be found for fifteen resident medical officers, a matter of no little difficulty.

The only other important structural additions were the operating and X-ray theatres. As already mentioned, there are two hospitals on the asylum estate of equal size, the main hospital and the annexe, having in round numbers 525 beds each. These are one-third of a mile apart, so a theatre was necessary at each. They are temporary buildings, each situated directly off the main corridor in the most central and accessible position possible, and I can recommend the design and ground plan to anyone building such an important department of a hospital. Armed with the standard army plan of such a building, as also the plans of similar temporary buildings at other hospitals, also by visiting, *e.g.*, the Royal Herbert Hospital at Woolwich, the temporary hospital at Cambridge, and the second Scottish General Hospital at Edinburgh, an eminent military surgeon, my own surveyor of works, and I evolved a plan omitting the defects and developing the good points of each of those. I am assured by those who work in our operating and X-ray blocks that they could not be improved upon. They are of wood framing covered with asbestos sheeting and rubberoid outside, and lined with lath and plaster, white enamelled inside, the white deal floors covered with polished linoleum, with the ample lighting, daylight and electric, warming and ventilation, well under control. They contain in all five operating rooms, two X-ray rooms, and waiting rooms, with developing rooms, main sterilising room, surgeons' and sisters' rooms, two anæsthetising rooms, and drug, instrument, and linen rooms. They cost £1,000 each.

The pack-store, which in a military hospital in war-time

receives sick and wounded from overseas, deals with the reception, disinfection, washing, and ultimate reissue of soldiers' clothing; important department as it is, it does not necessarily involve any structural alteration except the provision of 1,050 pigeon-holes, in spline racking, 18 inches cube, round the walls and centre of a large room, for each soldier's kit. It is convenient that it be adjacent to the laundry, but, except for the actual washing of the clothes which pass through it, it is entirely separate from the laundry as to buildings and personnel. At the Norfolk War Hospital it is a temporary building set up on the laundry drying ground between the steam-disinfector and the laundry proper.

If a properly equipped pathological laboratory is not one of the existing resources of the asylum of course one must be instituted. A large room must also be devoted to, and fitted up as, a physical and electro-therapeutic department. Extensive additions to the dispensary must also be found for the necessarily large stocks of drugs, dressings, and surgical appliances, splints, etc.

Equipment.—All the equipment necessary for an ordinary civil general hospital, and, in addition, the special equipment of a military hospital, are obtained on requisition, or "indent" as it is termed, from various military departments, the initial standard outfit from the medical department of the War Office, and subsequently on indents through the District Assistant Director of Medical Services (A.D.M.S.), local or private purchase, except in rare emergency, not being allowed. I need not mention the innumerable articles which have to be obtained, as this would be a mere recital of the catalogues of surgical and scientific instrument makers and hospital furniture dealers. It can, however, be imagined that, owing to the great and sudden demand all over Europe for surgical, X-ray, and electro-therapeutic instruments, drugs, and furniture, my anxiety to obtain these essentials was considerable, but it was evidently shared by the medical officers in high places at the War Office, for their uniform courtesy, business-like methods, and promptitude resulted much sooner than I expected in a first-rate equipment.

I must now proceed in my record to the probably more interesting question of staff—doctors, nurses, orderlies, and domestics. The general scheme of the medical staff is as follows:—There is a resident staff and a visiting staff, as in any

civil general hospital. Taking the latter first, one of the reasons for the selection of this asylum in the East Anglian group is its proximity to an important and modern general hospital, the Norfolk and Norwich Hospital, and the staff of this hospital was appointed *en bloc* as the civilian visiting physicians and surgeons of the Norfolk War Hospital, including a radiologist, oculist, pathologist, and dentist; the terms of appointment as to pay being £1 on each day that the hospital is visited.

The finding of a resident medical staff seemed to present great difficulties. One heard on all sides of the dearth of the younger medical men in hospitals and asylums, even as "locums," or in private practice. Before stating how this was surmounted I will shortly describe the constitution of the resident medical staff. There are six commissioned residents. The Officer in Charge is the officer responsible to the Committee of Visitors and to the military authorities for the general administration and management of the hospital. In all converted asylums except one the existing medical superintendent of the asylum was appointed to this office, and given temporary military rank as a Lieutenant-Colonel in the Royal Army Medical Corps while serving in the hospital.

Next to the Officer in Charge comes the Registrar. This important officer, the homologue of an adjutant in a regiment, is responsible for all the military and medical records—and they are not a few in a military hospital. He arranges for the reception of convoys and the allocation of the patients to the various wards, makes all returns of vacant beds, admissions, discharges, and deaths to the War Office, keeps a regimental record of offices and dépôts, arranges all the business of medical boards held in the hospital, all discharges and furloughs, and, as this has recently been created the central hospital for Norfolk, to which all auxiliary, Red Cross, and convalescent hospitals are affiliated, the Registrar is in charge of all the correspondence, records, and accounts of these hospitals, which vary in size from one to one hundred beds. He issues the daily "Hospital Orders" in the name of the Officer in Charge, which are posted up in every ward and department of the hospital. He holds the rank of Major in the R.A.M.C., and has a staff of twelve men and women clerks. Finally, he acts as deputy to the Officer in Charge in his absence.

At each of our two hospitals there is a chief resident surgeon,

VOL. XLII.

with the rank of Major in the R.A.M.C.; each is a Fellow of the College of Surgeons, and has full surgical charge of one hospital.

In charge of the fewer medical wards at both hospitals is the Chief Resident Physician, also ranking as a Major in the R.A.M.C. He is the Senior Assistant Medical Officer of the former asylum *régime*.

An additional officer of the R.A.M.C. has been attached to this hospital for the special duty of inspecting the auxiliary hospitals affiliated to us, which number some fifty.

In addition to these six commissioned officers there are ten resident civilian medical men who, speaking generally, correspond as regards their duties to house-surgeons and house-physicians in civil hospitals, a proportion of 1 *per cent.* to patients.

There is also a resident lady-pathologist, who works in a well-equipped laboratory, and who deals with, and reports on, all clinical specimens sent to or collected by her.

The securing of such a highly qualified and numerous staff was only possible by obtaining the services of men medically unfit for active service and yet physically fit for the less arduous indoor duties of a hospital; also by the fact that two of the number are Belgian refugee doctors, one a Canadian, and one a lady, the pathologist.

The pay of the commissioned officers, other than the former asylum medical officers, is £1 4s. 6d. *per diem* and all found, while the pay of the civilian residents is £1 *per diem* and all found. The few who are married live on the estate or close at hand, and have extra pay in lieu of board and lodging.

I next come to the nursing staff. Fortunately our Matron under the asylum *régime* was approved and appointed matron of the hospital. The two assistant matrons of the asylum were appointed to aid her in the housekeeping part of her work, and an assistant matron was appointed at each of our two hospitals to help the matron in the nursing department. This organisation yielded the great advantage of one supreme female officer with paramount authority, under the Committee of Visitors and the Officer in Charge, over all nursing and domestic affairs of the hospital. I have always been a strong advocate of this in asylum organisation, although I am aware it postulates a highly capable but benevolent despot ;

the system of dual control by housekeepers and chief nurses which obtains in some asylums has never appealed to me; dual control by medical officers and stewards is bad enough, but dual female control is anathema.

There are no probationers in military hospitals proper, but only the two ranks, sisters and staff nurses, the former corresponding to our charge nurses; both these ranks must possess the certificate of training gained in a hospital to which a nurses' training school is attached. At the time of conversion it happened that none of our nurses possessed this certificate, so they could only be given the position of probationer as this term is understood in a civil hospital.

There was no difficulty in obtaining sisters, the proportion necessary being one to each ward of between thirty-five and fifty-five patients for day duty, one superintending night-sister for each hospital, and one sister each for the operating and X-ray theatres, one in charge of massage at each hospital, and one for each of the two electro-therapeutic departments.

Staff nurses were more difficult to obtain. They are in the proportion of one, two, or even three to each ward or special department according to its size; and probationers two, three, or four in the same way for day duty to each ward or department; the complete nursing staff in this hospital of, say, 1,000 beds being as follows:

Nurses.	Day.		Night.	Total.
	Wards.	Special Departments.		
Sisters	24	6	2	32
Staff nurses	35	3	26	64
Probationers	71	7	50	128
Total	130	16	78	224
Also ten masseuses.				

It will be seen that the proportion is in round numbers, one nurse to every four and a half patients, or exactly double the asylum proportion, which may be taken as one to nine. The number of nurses required would probably be less in one hospital of a thousand beds.

The majority of the existing asylum nurses loyally took service in the humble ranks of the probationers, some few left the service at the conversion, and some of the senior charge-nurses were given special jobs in the housekeeping department, in sewing and stockrooms, pack-stores, etc., or in charge of housemaids, day-workers, etc. Newcomers from all parts of the country, and in various stations of life, were engaged to make up the necessary numbers of probationers. I cannot speak too highly of the way our experienced and capable mental nurses returned to the foot of the ladder, a very similar ladder after all, and worked under strangers, sisters, and staff nurses, who in a sense had usurped their positions in the asylum.

The pay of the sisters and staff nurses is fixed by the War Office at £50 and £40 respectively. They wear a grey uniform, the sisters at this hospital being distinguished by red bands round the upper part of both sleeves. Only members of the Queen Alexandra Imperial Nursing Service wear the scarlet shoulder cape, which, by the way, it is said was introduced by Florence Nightingale to subdue the charms of the female form divine. The probationers are paid and uniformed as those who used to join the asylum service, *viz.*, £20 per annum, with washing, dresses, etc., and wear such M.P.A. nursing or other badges as they may possess.

Orderlies: At all military hospitals, there being no probationers or wardmaids, the orderlies are a numerous and important body of men. At some converted asylums, War Hospitals, this is also the case, at least one company of the R.A.M.C. being stationed in the hospital as the guard, sentries, ward orderlies, and in other capacities. At the Norfolk War Hospital I had the male attendants enlisted in the R.A.M.C. and placed one of them as orderly in each ward, and have no guard or sentries. We have under 100 orderlies, whereas the regulation number for a hospital of this size is 200. If ever I had to open another hospital I would have no ward orderlies at all; of course, a few are necessary as porters, bathmen, or barbers, just as in a civil general hospital. My opinion is that the fewer men there are about a hospital the better. In hospitals with grounds, such as the converted asylums, a few R.A.M.C. men as military police are necessary to see that rules as to "bounds" are obeyed, and that the grounds are not

despoiled. The orderlies are under the command of the former head attendant, now a staff sergeant-major.

With a few words as to some of the other permanent officials of the asylum *régime* I will conclude the references to staff. The chaplain has been given the rank, and wears the uniform of Captain, as fourth-class army chaplain ; he conducts an early communion service at 8 a.m. and a "parade" service at 10 a.m. every Sunday, and visits the wards daily.

The steward naturally continues his ordinary duties as steward, or quartermaster, which duties I may mention are enormously increased.

The clerk of the asylum not only continues his much lessened duties as asylum clerk, but acts as assistant registrar, and is paymaster and chief accountant of the hospital. His duties, like those of the steward, have much increased and are onerous and responsible. Salaries or wages are not paid by the Army Pay Department, as in a military hospital, but I indent for money by submitting a monthly estimate to the chief paymaster of the Eastern command, through the Board of Control ; a cheque is sent to the county treasurer and the Committee of Visitors draw on this for salaries and wages, and the payment of such goods as are not supplied by the War Department, for which latter the Committee contract as they did under the asylum *régime*. Separate banking accounts were opened on April 1st, 1915, the beginning of the asylum financial year.

Domestics : Owing to the loss of all the valuable labour of the asylum patients our staff of domestics, such as laundresses, cooks, kitchenmaids, housemaids, cleaners, etc., has much increased, numbering no less than close on 100 women.

I will conclude my descriptive record by a few general observations which may be of interest alike to my asylum and War Hospital colleagues.

After the asylum was vacated I naturally endeavoured to qualify myself for my prospective new duties, for, although similar to my former ones, they were far from identical, perhaps as far apart as the duties of a banker are from those of an insurance manager or stockbroker. There are differences in ways of dealing with patients as there are of dealing with money. I spent, therefore, a week at the Royal Herbert Hospital, Woolwich, by authority of the War Office ; I also visited military territorial hospitals

at Cambridge and at Edinburgh. I also made myself familiar with the inner working of a civil general hospital receiving military patients, the Norfolk and Norwich Hospital. The matron, the clerk, and the steward had the same privilege as regards Woolwich and Cambridge hospitals.

I would have liked to give some comparative figures regarding the cost of maintenance as between the institution as an asylum and as a war hospital, but this unfortunately is not yet possible, at all events at present. Our worthy and careful steward becomes increasingly anxious at the comparatively huge receipts and issues of stores, such as milk, eggs, chickens, and bacon—all expensive and difficult items to obtain in large quantities even at any price; for example, a thousand eggs at twopence halfpenny each, as a mere breakfast adjunct, is alarming!

I am often asked about the amenities existing between the former mental nurses and the hospital-trained newcomers. I have already commented on the admirable and loyal way in which even the experienced among our former staff have subordinated many of their privileges and their rank in the service to the good of the hospital. On the whole, there has been very little friction between the old and the new staff, certainly less than I expected; moreover, in a hospital only six months old one cannot expect a scratch team to be animated by the *esprit de corps* and great traditions of a permanent hospital, such as Guy's, St. Bartholomew's, or the Edinburgh "Royal."

The discipline of soldier patients in hospital is effected much on the same lines as that of the insane patients in asylums. No punishment can be meted out to them except, *pace* Dr. Mercier, negatively by the deprivation of privileges, such as the withdrawal of permission to go to entertainments, concerts, motor drives, walking parties, etc. For grave offences, such as escapes, drunkenness, or assaults, the sending of a soldier when well enough to his dépôt with an offence report, without furlough, is the only action one can take. The conduct of the men is on the whole excellent, and practically one has no trouble as to discipline. They are an agreeable, cheery lot, and it is very interesting to note the various temperamental characteristics of the natives of all parts of the British Isles whence our patients originally come. Of course there are the usual few "grouzers" and inveterate

grumblers among the new as among the former patients. I attribute the general contentment largely to the ample and well-cooked food, plenty of occupation and amusements, and the reduction to a minimum of all irritating and really unnecessary restrictions.

I cannot close this imperfect account of the revolutionary upheaval which has taken place in 10 *per cent.* of our asylums during the past nine months without voicing a tribute from the Presidential Chair to the arduous work of the two Commissioners of the Board of Control, Dr. Marriott Cooke and Dr. Hubert Bond, to whom that Board delegated the important duty of acting as intermediaries in all the negotiations between the War Department and the vacating and receiving asylums. It is not for me to appraise the value of that work, but the small portion of it affecting the institution of which I have charge gives me some idea of the magnitude and high quality of their task to which they must have devoted long and laborious hours.

(¹) Read at the Quarterly Meeting of the Medico-Psychological Association in London, November 23rd, 1915.

The Biological Significance of Delusions.(¹) By HENRY DEVINE, M.D., Medical Superintendent, Portsmouth Mental Hospital.

THE purpose of this paper is to develop the thought that delusional formations fulfil a definite function; they are the expression of certain underlying trends in the individual, and they satisfy certain needs. At the present time there is a reaction against the tendency to regard classification as the ultimate aim of clinical psychiatry. While the separation of mental disorders into certain broad groups has its obvious uses, it is being recognised that classification in itself is not a very vital point, and it does not take us far in the understanding of our cases. Not only is each case a member of a particular group, but in a certain sense it is an entity in itself; the odd behaviour, the delusions and hallucinations, have an individual significance; they are the outgrowth of personal conflicts and aspirations, and the whole psychosis is no more than one form of reaction to experience.

The general significance of some delusional conditions may be indicated by reference to certain normal mental activities, such as day-dreams or reveries, which have not only a similar psychological structure to delusions, but the same biological function. Every individual possesses needs or impulses which seek gratification; these constitute the motives for conduct. Thus everyone has desires for wealth, fame, or knowledge, all of which may be included under the term "ambitious complex." In the highest type of mental organisation these desires are co-ordinated with reality, and the individual maintains a constant struggle to attain his ends. Such adaptation to reality is, however, the most difficult psychic operation, and this high level of conduct cannot always be maintained; there is a tendency, therefore, to turn away from facts as they exist, and to gratify inner tendencies by seeking refuge in inferior mental operations. Thus the tired man after the work of the day seeks distraction at the theatre. As a spectator at the musical comedy he lives in an atmosphere of romance, which forms a contrast to his commonplace existence, and thus gratifies certain hidden desires and ambitions. He identifies himself with the hero of the play, and shares his troubles and triumphs. The same ætiology is seen in the case of day-dreams. The tendency to reveries in children is favoured by circumstances which render external conditions monotonous and difficult, and the same tendency is seen in the case of psychasthenics, who, owing to an inability to adapt themselves to their social environment, often elaborate extremely complicated, romantic, and ambitious reveries. Thus the biological function of these mental operations is to afford an escape from reality, to gratify wishes which are impossible of fulfilment under the actual conditions of existence. Furthermore, the less the individual is able to gratify his ambitious complexes by efficient action, the more will he tend to seek compensation by falling back into these inferior modes of mental activity.

Delusional states have, not infrequently, a similar significance. An individual is placed in a situation to which he cannot adapt himself, and he unconsciously seeks refuge in a psychosis, the content of which shows clearly the mechanism of "wish-fulfilment." Thus a congenital deaf-mute, stunted, deformed, and ugly, who has been brought up in the workhouse,

develops the following delusions. She imagines she had been stolen away at birth, and is really the daughter of certain exalted personages. Those around her are malignant persecutors with the exception of the medical officer, on whom she proposes to bestow her hand. She relates various indignities to which she has been subjected, but in spite of these she sits all day long with a rapturous expression and a smile of superiority. She explains that her ugly appearance is only a disguise due to a spell which has been cast upon her by her enemies; before long she will be "infruated," this neologism meaning that the spell will be removed, and she will emerge as a beautiful girl, with long golden hair. Reality in this case is summed up by a hideous form, deaf-mutism, with its hindrance to companionship, and the grey outlook of workhouse life. Contrasted with all this, however, she possessed just the same natural desire for admiration, craving for affection, and instinct for maternity as any ordinary girl. These hidden desires had obtained gratification by invading and transforming the personality. The patient had sought refuge in a psychosis.

Other instances might be cited in which there is an obvious antagonism between desire and circumstance, but this example suffices to indicate that in some psychoses (*defence psychoses*) there is quite obviously an attempt at adjustment to external difficulties in the direction of "wish-fulfilment." It is by no means usual, however, to establish such an obvious correlation between the situations to which an individual has been subjected and the delusional content. In dementia præcox, for instance, the casual observer gains the impression that the ideation is utterly chaotic and meaningless, and that the delusions expressed are a haphazard array of fantastic notions.

When these cases are investigated, however, it is found that such an opinion is scarcely justified. It has been demonstrated that there is no diminution of mental activity or actual destruction of psychic functions, such as occurs in plainly organic disorders, of which dementia paralytica is an example, in cases of the dementia præcox group, but merely a direction of the thoughts inward, with a corresponding lack of interest in external affairs. When analysed it is found that these patients have only adopted a peculiar view of their own, and that the delusions have a meaning and purpose analogous to the inferior forms of mental activity which have already been cited.

The obscurity and incoherence of thought in the precocious dement is thus not due to dementia in its narrow sense, but is accounted for as follows: In the first place, the individual suffering from dementia præcox does not of necessity succumb to circumstances of any particular difficulty, but, owing to internal conflicts, he is unable to adjust himself to ordinary situations. The fault lies in the make-up of an individual rather than in his circumstances. It follows, therefore, that the delusions are subjectively determined, and they relate to intimate personal matters, the nature of which is not apparent on the surface. In the second place, the inner tendencies which seek expression do so in such a distorted manner that their meaning is far from obvious. Just as the manifest content of dreams is only the symbol for some hidden concrete thought, so the delusions in dementia præcox are the expression of actual impulses or desires which obtrude themselves indirectly into consciousness; the indirect expression being due to the repressive force exercised by the normal personality, or such remnants of it as exist unimpaired. Thus, when one of Jung's patients said, "I am the double polytechnic irretrievable," she meant, "I am the best tailoress."

To make these points clear I propose to give some extracts from the analysis of an actual case, the study of which has recently been engaging my attention. The analysis has been undertaken by means of "word-association" tests and the method of "free association," upon the lines indicated by Jung, to whom, of course, we owe much of our knowledge of the psychological factors in dementia præcox. The subject of this investigation, a single man, æt. 32, has been in the asylum for four and a half years. The following facts of his history were elicited: At the age of 8 the patient lost his father, and his mother was left a widow with six children to support. The patient was the fourth child and the oldest son. He was described as "never very strong," and dull and reserved in character. He did well at school, and upon leaving he worked until the age of 19 at one situation. After this his work was most irregular, and for some time before entering the asylum he did practically nothing. He was then aged 28, and two years previously his mother had become insane, and she is still an inmate of the asylum. The patient was certified owing to delusions of persecution. He thought people were talking

about him, and he became strange and erratic in conduct. At the present time he is quiet and inoffensive, he does a little light work, interests himself to a moderate extent in the activities of the ward, and apparently lives a contented existence. He is ready to converse on general topics and displays a considerable knowledge of current events, but he soon diverges off the subject into fantastic delusional statements. He explains in a thoroughly cheerful manner that he is undergoing terrible torture from subconscious force, nature is hypnotised, his mind is filled with Chinese hypnotic supernature, he suffers from reflex action, bestiality is forced through him, moral agony is concentrated upon him, he has to be engulfed in the centre of gravity, and numerous other ideas of a like character. The diagnosis is obviously one of paranoid dementia præcox.

Now though these curious notions are loosely organised, with considerable pains it is possible to piece together a coherent delusional line of thought. This is briefly as follows : The whole of humanity, Nature and God Himself are under the influence of some malevolent "superomnipotent" power. This power takes the form of a "hypnotic supernature." Its effect is to destroy freedom of action in humanity, forcing people to act against their desires and making them constrained and ill at ease. The patient traces evidence of this in current movements, wars, plagues, labour unrest, and social injustice, detecting in general a tendency towards racial deterioration. Furthermore, this force has prevented the souls of men from dying, and thus there is a quantity of floating consciousness in Nature. Because the patient is a "moral degenerate with a pliable mind," he has been selected to play the chief rôle in this curious state of affairs. These living souls—chiefly Chinese—are now located in his consciousness, and inflict numerous tortures and indignities upon him. They inflict him with moral agony, and force bestiality through him. What are delusions to other people are made to him "a frightful reality." Thus, if another patient thinks he has a woman inside him, they actually put the spirit of a woman inside the patient himself. This state of affairs will shortly culminate in a "hypnotic war," and all the evil which is in him will be let loose on society. Five months of suffering will ensue, during which the world will be more or less disorganised, and the

patient himself will be regarded as the cause of all the trouble. He illustrates this by a concrete instance. Any sexual thoughts which have been forced into his mind will obtain actual fulfilment, women will become prostitutes, and will trace their downfall to him. Actually, however, he is only the chief victim, he is the medium through which the regeneration of society will be brought about. When the evil force has inflicted sufficient agony, it will be dispersed, and the patient will be free to wage an "inspiration moral war." Society will be purged through his sufferings. He will be the master power, the new Messiah. This brief outline indicates that the patient has constructed a complicated drama in which he is the central figure. The main theme is obviously regeneration through conflicts and suffering. Now, when this phantasy is analysed it becomes apparent that it represents the patient's own internal conflicts and aspirations. This will become clear if we study the most prominent delusional ideas, giving a few of the associations which appeared in the analysis.

The patient reiterates frequently the phrase, "*I am hypnotised by subconscious force of supernature.*" The following are some of his associations: "I am forced to do what I otherwise would not do. I once saw some Chinese wrestlers; one held the other down. I have always been held down. I never had any free will. It wasn't a disease, it was lack of will. I struggled against self-abuse; they would not let me give it up. I wished to break my self-consciousness, but the more I thought of my bad habit the more it became fixed on my mind; I lost the power of my nature, it was all from hypnotic force; I lacked power of action. It was an effort to walk in the street, a terror to ask for a job. If I had made one big moral effort the weight would have gone. I was never allowed to tell anyone. I daren't talk to a woman; if I had the pressure would have left me, I should have become a man. I could not prevent the wrongs and injustice about me." From these associations we see that when the patient says he is hypnotised, he refers to his volitional incapacity. The process is one of rationalisation—by a method of outward projection the responsibility is placed on some external agency. The following concrete reactions which the patient exhibits illustrate this mechanism quite clearly.

(a) When asked to work, the patient shows much hesitation

and says, "They put the hypnotic-idle-atrophy upon me, I can do nothing." He here rationalises the feelings of incapacity which are so common in psychasthenics when any form of activity is required.

(b) When he plays a game of billiards he says, "They put the hypnotic pressure on, and turn my eyes the least bit, so that I cannot hit the ball right." Here he rationalises feelings of self-consciousness which arise in the performance of delicate co-ordinations, and which, of course, prevent a completely efficient action. It means attention to movements which should be automatic, and is a common experience in nervous persons.

(c) In the word-association experiments, and sometimes in conversation, the patient fails to react at all ; no word comes to his mind, or he loses the thread of his conversation. He explains in these instances, "They put the hypnotic break on me, and make my mind a blank." This "thought deprivation" is always found to be due to reminiscences about which the patient does not wish to think, and indicates the existence of submerged complexes. Such moments of obstruction to his thought were, no doubt, common enough in his daily life. As before, he explains them by reference to external agencies.

(d) Lastly, there is a tendency for his thoughts to become automatic. He loses control over them, and they appear in consciousness against his will. These forced reveries, to which he has been subject for many years, constitute one of the chief reasons for his notion of being hypnotised. The expression, "Nightmares are forced on to me," illustrates this. These experiences will be further elucidated when his hallucinations are considered.

A further notion which the patient expresses is one relating to the Chinese. Thus he says, "*I have Chinese souls in my mind.*" These are some of his associations : "I have been submitted to a drumhead trial from Chinese Machiavellis. It was a trial without defence ; they could accuse me of what they liked, there was no retaliation. What the Chinese have been through as a nation corresponds to me as an individual. The Chinese believe in the transmigration of souls. They were hypnotised under opium, it distorted their minds and took away the death agony ; I have driven my thoughts in with cigarettes, it eased my fears, but forced me to dream

bestial nightmares; if a man smokes it forces bad habits (masturbation) on to his mind, he cannot give them up. Cigarettes destroy life by taking away a little bit of super-happiness. The Chinese are small, their houses and trees are stunted, they are hypnotised like me with opium. The Chinese were trodden upon by European nations, they had to work other people's minds like me. The Chinese were allowed to go to ruin; no one was allowed to help me, they were manipulated against it. The Chinese are descended from Hagar, a bond-woman; my mother is the mother of Chinese, she was left a widow to fight for herself. Before the revolution the chief power of China went to America. I was afraid to take any risk; my brother, who had more courage, went to America, and struck out a new line for himself." The patient, however, has some more hopeful associations. He describes how, since the revolution, the Chinese are breaking their bad habits, cutting off their pigtails, and so on. This is connected with the thought that the patient himself is going through a struggle or revolution, the effect of which is to purge him of his bad habits and vices. The underlying notion is expressed in his constant observation, "When a man is on the downward path and pulls himself up, he is a better man for his struggling and experience; he can tell others how to act."

The Chinese delusion is thus a process of *identification*. When he says his mind contains a Chinese spirit, he really means there are certain analogies between that nation and himself. He refers to the fact that cigarette smoking has stunted his growth, weakening his will-power; that he has been oppressed by others; that he has been allowed to drift on the downward path, a widow's son with no one to advise him, and so on.

Another form of persecution which requires elucidation is contained in the phrase, "*They concentrate moral agony on me.*" When analysed this exaggerated mode of expression is found to refer to the little difficulties in life to which every individual is subjected. Thus, he says, "It's persecution, spite and malice; I'm to be trodden down; it's not the thing in itself, it's cumulative; it's all this sense of injustice, the little personal, petty things. It's the side, swank, and swelled head of people which is agony to me. These things are trivial if you are not held down." The patient illustrates his expression by a wealth

of concrete details. They all consist of everyday worries common to every working man—little annoyances in the institution, a bullying foreman, low wages, inability to obtain work, little aches and pains. All these things, of course, assume traumatic significance because of his inability to react effectively to situations which present themselves.

We now come to the consideration of the patient's hallucinations and allied phenomena. These consist of actual "voices," "forced" thoughts which he refuses to acknowledge as his own, or sometimes actual dreams of a peculiarly vivid character. These experiences relate almost exclusively to his family. Thus the voices say to him, "Should his sister tell?" This refers to the fact that one of his sisters had a child before her marriage, and the voices are asking if she should acquaint her husband of the fact. Further associations of an intimate character are also aroused. The patient exhibits a strange dislike of his sister's husband, explaining it on trivial grounds. He states that on the day of her wedding he could not bring himself to attend the ceremony, but went off to work. The thought of the couple as man and wife caused a great disturbance in his mind. These thoughts lead back to other concrete reminiscences of childhood, relating to infantile experiences of a sexual character with his sister. The voices also accuse his mother and sister of being prostitutes, and we find that at the "drumhead trial," to which reference has been made, this is especially the taunt which was levelled at his head. When he says he had no defence against this accusation, the significance of the remark is obvious. The "bestiality" which is "forced" into him consists, in the main, of unveiled images of an incestuous nature. The content of these phenomena is again determined by definite experiences of childhood and youth. Owing to the narrowness of their circumstances, the patient occupied the same room as his mother, such a state of affairs persisting until after puberty. This naturally led to the development of premature sexual curiosity, impulses, and thoughts, which had a considerable influence upon the subsequent development of the patient.

Thus it is seen quite definitely that the hallucinations owe their origin to a series of infantile experiences. This aspect of the case will be referred to subsequently. For the moment it is sufficient to note the existence of what may be called the

"family complex," which includes a series of sexual memories, with impulses or compulsive tendencies in a special direction.

Having now in some degree elicited the meaning of the persecutory delusions, some attention must be given to the expansive side of the psychosis. This aspect is not nearly so prominent as the persecutory. The patient speaks of the future with diffidence and reluctance, and he always follows his delusional assertions by the remark, "They can make me a liar if they wish, they can make these things hypnotic delusions." The following associations denote the general trend of the ambitious phantasies: "The hypnotic war is to put Nature right again, afterwards I shall tell what I have learnt; I am the ultimate redemption which follows this bestiality, the transformation of the race will be done through me and doctors. The future is mental and moral redemption. They tell me the cause of epilepsy, consumption, and cancer. Not doing to others as they would be done by. Swank, I call it. The patient S. boasts that he has tobacco at 8d. an ounce; that boasting affects the mind and causes epilepsy. Epilepsy is not being decent to a man, it's being high and mighty; swank unbalances the nature. I shall have the inspiration, I shall be the master-power, and cure all this by saying the right thing. When I have omnipotent power I shall redeem things, I shall tell people what they need. They tell me I shall be king of kings, my mother will get freedom through me. I cannot do anything now, I am held down. As much moral force as I have had drawn away I shall have back again. My suggestion will be moral strength. They make me believe I shall have seven wives; seven is the natural number," etc.

These expansive ideas are of considerable interest. They refer almost exclusively to the patient's endowment with knowledge and moral power, and they contain no reference to wealth, rank, and titles. He explains, "I shall be myself, plain S." Even his reference to the king of kings only means superiority in a volitional and moral sense. The following examples indicate that he will be endowed more especially with qualities and attributes which he actually lacks.

(1) He will have "the inspiration"; after giving various mystical meanings of this he suddenly remarks, "It is complete concentration, a total loss of self, and a power of forgetting your surroundings. An engine-driver has the inspiration when

he sees the signals subconsciously ; his eyes are fixed in front, so that he can pull up directly with danger. A man who has that is a superman, he is just a perfect being, he could overcome trouble and sickness." This rather remarkable statement from an uneducated man expresses accurately the quality which he as a hesitating, perplexed, and ruminating individual had always lacked.

(2) He will "give society a good hiding by suggestion." He here means that he will be able to retaliate for his former rebuff in a manner he has hitherto lacked courage to do.

(3) A similar notion is expressed in his views on disease. He has for many years been preoccupied about his health, and thought he was consumptive, but he knows now it was due to "lack of will." He, therefore, generalises, and ascribes a mental causation to all maladies. "Cancer is due to puffing of the breast with pride. Habits which seem nothing lead to epilepsy. If I could speak my mind I could cure all these. They are due to little spiteful tricks." It is to be noticed that he lays stress on faults in others which have been especially irritating to his sensitive nature, so that when he talks of curing diseases the underlying thought is that he will reprove those who have annoyed him by their overbearing conduct.

(4) Somewhat cruder are his "wish-fulfilments" in regard to marriage. He is to have seven wives, his nature will be restored, etc. He goes on to show how he will produce children under perfect eugenic conditions ; but space forbids further reference to these notions. Such ideas are of obvious significance in a man who was obsessed by the thought that he was impotent.

Now though the ultimate psychological roots of the various delusional thoughts have probably not been completely elicited, sufficient material has been obtained from the analysis to justify certain conclusions. In the first place, it is seen that each delusional thought has numerous relations or associations which serve to indicate its special meaning and significance ; in the second place the special conflicts to which the patient had to adjust himself have been elicited ; and, in the third place, insight has been obtained into the constitutional characteristics of the patient, or the peculiar setting which constitutes the basis of the psychosis.

It is apparent that the character of the patient betrayed
VOL. LXII.

10

abnormal traits from puberty. The patient grew up shy, diffident, and reserved. He lacked courage, was afraid to take any responsibility, and became increasingly unable to get into contact with his surroundings. Though troubled and unhappy, he felt unable to tell others of his difficulties, and he was keenly sensitive to his own incapacity. These constitutional deficiencies, taken together, represent what August Hoch has described as the "shut-in personality," and they are often found as the basis of dementia præcox.

Now in these defects of the personality I think we see what is best described as a failure in psycho-sexual evolution, using the term sexual in its widest sense. However one may hesitate to accept Freud's sexual theories in the schematic manner in which he presents them, there is no doubt that the sex-impulse or libido constitutes the most potent biological force in the individual, and further, that defects in its development lie at the root of many psycho-neurotic disturbances. I think we may also say that this libido or psycho-physical energy is not only expended in sexual activities, in their narrow sense, but flows outward, is sublimed into other channels, and becomes the motive force for the manifold activities of ordinary life. It is interesting to note how this notion was expressed by Mercier quite clearly some years ago. He says, referring to the development of sexual activity at puberty: "In man at this period not only does the special activity find ready outlet, since to him belongs by ancient and prescriptive custom the initiation of the overtures of love, but at the same period of life he is usually provided with abundant outlets for the general activities of his nature, which then receive so marked an accession to their vigour. . . . He can enter freely into clubs or societies of various kinds, can take up a special study or pursuit, a science or an art, and find in such pursuits channels of escape for the activities which are so copiously generated within him." At puberty, therefore, in the healthy individual the libido expresses itself by transference to objects outside his own family; the youth finds pleasure in mixed society, he falls in love, and so on; and also the impulse flows into other channels (sublimation), and becomes the motive for ambition and creative activities generally.

No such normal, healthy development is seen in the case of our patient. Before puberty the surroundings and circum-

stances of the patient had been of such a character as to arouse premature sexual tendencies in an abnormal direction. The normal affection for his mother and sisters became associated with concrete sexual desires, impulses, and curiosity, the significance of which it is impossible to ignore. With the growth of moral and ethical standards these impulses were submitted to a rigid repression, but the subsequent development of the patient indicates clearly that the free expression of the libido was hindered, the repressed impulses exerted an unconscious influence, and served to prevent a normal psycho-sexual evolution.

Then at puberty, though a normal intellectual development occurred in the volitional sphere, defects soon became apparent. These have already been detailed, and indicate a failure of sublimation. In the definitely sexual sphere there is a complete failure of transference to object love. He develops an abnormal shyness, and later a definite dislike for mixed society. This afterwards becomes almost an obsession, and he says: "I would walk a mile out of my way to avoid passing a woman." His conscious sexual life is confined to auto-erotic tendencies, vague fancies about women, and a morbid curiosity comprised under the expression "spying on lovers."

Now, in addition to these strangled sexual impulses, associated with a general volitional incapacity, indicative of a failure of transference and sublimation, certain special reactions indicate the specific influence of the "family complex." Thus all his life the patient had shown an abnormal bias towards his home, an undue dependence. His own words indicate this: "Home is final, there is nothing past that; you are your own master, your thoughts are at rest, it's always a refuge for me; a chap who couldn't fend for himself and has to depend on home if he is turned out is practically killed." Another reaction indicative of the abnormal kind is seen in his dislike of his brother-in-law. When analysed this feeling was shown to be due to jealousy associated with childish experiences which have been already detailed.

The delusional content shows the influence of this complex still more clearly. Not only is this the case in the hallucinations, the peculiar content of which has been described, but also in numerous fantastic notions relating to the patient's mother. The following is characteristic: "The hypnotic

spirits mix me up with my mother; they pervade me with her consciousness. They make me think she is mother-earth. The earth has consciousness; they will give my mother consciousness of the thoughts which are forced into my mind. There is special enmity to my family." These thoughts are very obscure, but they obviously mean a mystical union of the souls of his mother and himself; a realisation on his part of the peculiar thoughts he has about her, and also a general tendency to place her on an exalted plane.

It has been necessary to consider the personality of the patient in some detail, because without such knowledge the significance of the psychosis is quite obscure. It is clear that the psychosis does not depend on any notably severe external stresses, but rather upon defects in the make-up of the patient, which prevented him from reacting effectively to ordinary situations. The patient aptly expresses his own defect in the phrase "I never grew up." This is quite true. While his intellectual growth was probably beyond the average, the development of his libido, that "life force" which serves to create healthy external interests, and forces an individual into contact with the world, was hindered and unable to find free expression. Thus the patient becomes a solitary, brooding figure; nourishing ambitions he cannot gratify, and isolated in a world which must of necessity assume an aspect hostile and malignant. This is the soil upon which the psychosis develops. The delusional phantasy is a method of compensation—it is a substitute for efficient action.

A brief review of the content of the psychosis will make this clear. In the first place there is the mechanism of wish-fulfilment. The shy, diffident, hypochondriacal youth, afraid of responsibility, unable to retaliate and conscious of his own incapacity, is to become the great healer by moral force, he is to purge society, he is to transform the world into a Utopia and put right those social conditions against which he has struggled so ineffectively. He is to have "the inspiration"—perfect efficiency. In the sexual sphere his strangled impulses become fantastically realised, and we find "he outrages females by hypnotic transference." His auto-erotic fancies assume a definitely illusory form, and he becomes endowed with the "face and form of a woman." How his suppressed incestuous impulses force their way into consciousness in the form of

hallucinations and obscure delusional thoughts has already been described ; and on a more elevated plane of thought the patient pictures himself as the father of a numerous healthy progeny, born and bred under perfect eugenic conditions.

In the second place there is the mechanism of projection. The analysis has shown that the patient ascribes to some external agency all his feelings of incapacity, all his inferior attributes and qualities, and all his thoughts and desires which do not harmonize with his ethical and moral standards. Such thoughts and feelings are not his at all, his real personality is the one which is "held down," the perfect being which will emerge at the termination of the hypnotic war. This method of adjustment is no more than an exaggeration of a mechanism which is common enough in everyday life. The incompetent man is always ready to regard himself as the victim of circumstances ; because in this way he avoids looking into his own mind, and discovering the painful fact that his failure results from his own inefficiency. It is obvious that an elaborate, persecutory, delusional scheme may originate in this manner. This mechanism is of particular interest in regard to hallucinations. An individual refuses to acknowledge these isolated images as belonging to himself because they are out of harmony with the general trend of his personality. Thus, one of my patients, who was afflicted with "voices" which made amusing but vulgar remarks to her, denied strenuously that they could be her own thoughts, because she could never under any circumstances entertain such coarse notions. In the same way one patient not only gratifies his less creditable desires, but he is able to absolve himself of all responsibility in the matter. Instead of struggling against his thoughts, he can now give himself up to them, and he is able to explain in a detached and complacent manner that they do not belong to his own personality at all.

Lastly, we see in this delusional phantasy the erection of a pretentious philosophic scheme which serves as a complete substitute for an incapacity in action. Such a defensive mechanism is quite usual. Individuals who fail to adjust themselves to reality often tend to fall back into rumination upon the meanings of things, and are apt to adopt a pretentious manner of speech. I cannot refrain from giving an excellent example in one of my own patients who has shown an in-

creasing incapacity to manage his own affairs. He is now becoming very superior and detached, and recently he wrote as follows: "In a world in which nothing is an indefinite something there is much ground for hope, and one may view with calmness the progress towards final night of those who use distributed negatives to inconceivability, and betake oneself to a cold peak of learning which sees humanity concluded under a barren negative; and like the wayfaring man to formulate the advance of a nation of strong negatives over a nation of weak positives in such a way as to cause the influx of a united people of a far continent." There is no doubt that these phrases seem perfectly rational to the writer himself, though the actual relation between the words and the concrete thoughts they are designed to express is decidedly obscure. They certainly give him a great deal of pleasure and infuse him with a delicious sense of intellectual superiority.

This superior attitude is very obvious in our patient, and it is readily understood how, detached from the external world of reality, he naturally fell back into the contemplation of all kinds of obscure subjects—social problems, religion, hypnotism, the yellow peril—which afforded all the necessary material for the psychosis. The less efficient the patient becomes the more his ego expands, and eventually he feels that he has arrived at the solution of every problem which presents itself. From a state of uneasy rumination and doubt he has attained a position of positive belief, and he is able to watch the fruitless struggles of his fellow-creatures with an air of complacent detachment. As the patient interprets his own actions, so he interprets those of other people. He sees in humanity a mass of struggling souls, manipulated by an unseen force, each striving against the other—a topsy-turvy world which he alone can put right. Thus prevented by defects in his personality from an energetic application to reality, and unable to mould his circumstances in accordance with his desires, the patient gratifies his inner tendencies by the construction of a delusional phantasy. The psychosis has therefore a definite biological significance, analogous to other inferior mental operations in normal mental life. It is a method of adjustment by means of which the patient attains a state of equilibrium, and compensates himself for a life of conflict and failure.

¹) A paper read at the Section of Psychiatry, Royal Society of Medicine.

After-care Report of Epileptics following Colony Treatment. By A. HUME GRIFFITH, M.D., D.P.H.
Superintendent and Medical Officer, Epileptic Colony,
Lingfield. Communicated by SIR G. SAVAGE.

HITHERTO a difficulty in forming a just opinion as to the value of the colony treatment of epileptics has been the inability to keep trace of the patients after they have left the Colony. In connection with the Lingfield Colony (which has nearly 300 epileptic patients), an attempt has now been made to follow up, and obtain a report upon, those patients who have left the Colony during the last 4½ years. To this end a circular was sent to the different local authorities asking for their co-operation in this investigation, and thanks are due to them for their prompt response. The number of cases inquired into totalled 101. The number of reports actually received was 100, but 20 of these were blank, the patients having disappeared without leaving an address. Eighty cases altogether have therefore been available for consideration as follows :

(1) *Arrest of Fits.*

Eighteen (or 22·5 *per cent.*) are still free from fits, the period of arrest being as follows :

1 year	3
2 years	1
3 "	4
4 "	7
5 "	3
	<hr/>
	18

(2) *Length of Time away from Colony.*

Less than 1 year	17
1 year	24
2 years	24
3 "	12
4 "	3
	<hr/>
	80

Only 3 patients out of the 80 had been away from the Colony for four years. It is hoped to make this investigation five-yearly, so that each successive period should yield more definite results.

(3) *Number Wholly or Partially Self-supporting, 22 (27.5 per cent.).*

This is satisfactory, as 10 *per cent.* is considered the average. But it must be remembered that practically all leave colony life and treatment against medical advice. Public authorities are naturally anxious to get suitable cases off their hands as quickly as possible. Parents insist on parental rights. The epileptic patient, even when the disease is confirmed, is usually of the opinion that if given a chance he could do anything or everything, so that altogether it is uphill work to be always insisting that epilepsy is a very serious disease, that intermissions for a larger or shorter period are quite common, even without treatment, that, even when the disease is arrested, it is unwise to talk of a cure. Dr. Alden Turner's dictum is probably a sound one, *viz.*, "that the disease may be said to be *arrested* when there has been no fit for nine consecutive years, and that in 10 *per cent.* of the cases thus arrested a cure may be more or less confidently expected."

Thus out of the 22 reported wholly or partially self-supporting, the latter are still having fits, and, therefore, would not be likely to be employed through fear of the Workmen's Compensation Act. It is interesting to notice that 18 (81.8 *per cent.*) out of these 22 cases had passed through our school, which is conducted on open-air lines.

(4) *Nature of Occupation.*

Shop, 3; army, 6; not mentioned, 11; handyman, 1; chemical works, 1.

It is noticeable that, with the possible exception of the army, none of the occupations given are suitable for epileptics, even when the disease has been arrested. They need an open-air life, free from strain or anxiety. At present they take any job that offers, and go from one situation to another. They have been carefully looked after for years, taught, dieted, disciplined, even had their games organised, only to be pitch-

forked into the outside world, to sink or swim. Education Committees are more and more waking up to their responsibility in dealing with epileptic children, by sending them to special schools, but suddenly, when the age of sixteen is reached, that responsibility ceases, and, unless he or she can be transferred to a Board of Guardians, the child is withdrawn, lives in unsuitable surroundings, the treatment is stopped, often suddenly, and it is not remarkable that many who have had no fit for quite a long period relapse, and become confirmed epileptics. The crying need is co-ordination and co-operation between the Board of Education and the Local Government Board, so that automatically an epileptic child at the age of sixteen may pass from the care of a teaching body to the control of a Guardian Committee, who will be prepared to take an intelligent and sympathetic interest in his case for many years, if not to the end of his life. The revival of the old apprenticeship system would be excellent, provided that some means could be devised of safeguarding employers from any penalty under the "Compensations" Act when employing epileptics.

Six of the patients have joined the army. Most of these are now on active service. One has been recommended for the D.C.M. for bravery under fire in carrying dispatches. At the outbreak of the war some of the worst cases in our adult male home absconded and enlisted. Two were old soldiers. Their stay in the army has usually been a short one. Their fits have been discovered, and they have been promptly discharged, and have drifted back to the workhouse, or gone "on tramp."

(5) *Number still having Fits, 38 (47.5 per cent.).*

Nearly half, and most of these were withdrawn at the age of sixteen, the local Education Committees ceasing to be responsible for their maintenance. In a few cases the parents have removed the child in opposition to all advice. In no case has the medical officer in charge more than ordinary advisory power, and his advice is more often rejected than accepted, particularly by parents, who naturally like to have their child home, particularly if the patient is likely to bring in a few shillings extra to the family exchequer. Often the patient himself gets unsettled. He naturally wants to see the world,

believes in his own power to accomplish great things, threatens to abscond, and probably does so, and then starts life in the great outside world handicapped by a false step.

Out of the 38 cases still reported as having fits, 29 went through the school (*i. e.*, were admitted as children). Most of these were Education Committee cases, and then had to be withdrawn at the age of sixteen, *although still suffering from fits*.

(6) *Number who Died since Leaving, 8 (10 per cent.).*

The annual death-rate of the Colony is low ; last year being under $\frac{1}{2}$ per cent. With the best will in the world it would be impossible to give patients the same care outside.

Of the 8 deaths 3 occurred in asylums ; and in only one (an asylum case) was the cause stated, death having been certified as due to *status epilepticus*. The danger of suddenly stopping treatment is well known, and in some cases it may well be that *status* is actually induced by such stoppage.

(7) *Number of Cases who have had to be Certified since leaving the Colony, 20 (or 25 per cent.).*

This is far from encouraging, but quite a number of these cases were confirmed epileptics, who had been allowed to remain at the Colony for some years, as it was felt they were better off there than anywhere else. It is doubtful whether they would now gain admission, as most of them were decidedly mentally deficient, and would now come under the provisions of the Mental Deficiency Act. Out of the 20 cases certified 15 had been through the school, and 5 were over school age on admission.

Ten out of the 20 were still having fits when they left the Colony.

In conclusion it is interesting to contrast the medical history and record of the patients when resident in the Colony, who are now partially or wholly self-supporting, with the records of the 20 unfortunates who had to be certified, with regard to the following points :

- (1) Type of fit.
- (2) Date of first fit.
- (3) Supposed cause.
- (4) Morbid family history.

- (5) Mental age, as tested by the Binet-Simon tests.
- (6) Monthly incidence of fits.
- (7) Educability as shown by six-monthly reports.
- (8) Conduct, as shown by six-monthly reports.
- (9) Average daily dose of bromide.
- (10) Length of time in Colony.
- (11) Frequency of fits before admission.
- (12) After-care report.

(1) *Type of Fit.*

(A) *Certified cases.*—Out of the 20, 13 are “combined” major and minor. All but 2 of these are noted “chiefly major,” one as “serial.” Three suffered from major fits only. In two cases the type is not recorded. One only suffered from minor fits, combined with night terrors.

This is interesting, as “*petit mal*” is considered to bring about mental deterioration more quickly than the “major” type. On the other hand, many epileptics change their type of fits from year to year, as is well known.

(B) *Non-certified cases (self-supporting).*—Out of the 22 cases only 5 are “combined,” 8 major, 4 minor, and 5 not recorded. The “combined” type, therefore, seems more favourable to mental deterioration than either the “major” or the “minor” alone.

(2) *Date of First Fit.*

(A) <i>Certified Cases.</i>		(B) <i>Non-certified Cases.</i>	
Infancy to 3 years of age	6	Infancy to 3 years of age	4
3 to 5 years . . .	3	Between 3 and 5 years .	5
5 to 10 years . . .	6	Between 5 and 10 . . .	5
Over 10 years of age .	2	Over 10 years of age . .	5
Not recorded . . .	3	Not recorded . . .	3
	—		—
	20		22

The figures are remarkably even, and yield no deductions of value.

(3) *Supposed Cause.*

(A) *Certified Cases.*

Unknown	9
Heredity	3

Injury to head by fall or blow (1 instruments used at birth)	5
Sunstroke	1
Convulsions three days after birth	1
Fright	1
	<hr/>
	20

Probably most of the five cases supposed to have been caused by a blow or fall could be added to the nine unknown.

(B) *Non-certified (Self-supporting) Cases.*

Unknown	16
Heredity	1
Fall on head	2
Sunstroke	1
Excessive cigarette smoking	1
Dentition	1
	<hr/>
	22

(4) *Morbid Family History.*

(A) *Certified Cases.*

Healthy family history	1
History of cancer in near relation (mother)	3
Epilepsy in near relatives	6
Insanity in near relatives	2
Phthisis in near relatives	3
Hysteria in near relatives	2
Alcoholic in near relative	1
Unknown	2
	<hr/>
	20

(B) *Non-certified (Self-supporting) Cases.*

Healthy	6
Cancer	1
Epilepsy	5
Insanity	0
Phthisis	4
Alcohol	1
Convulsions	1
Unknown	4
	<hr/>
	22

In (B), as one would expect, there are more healthy family histories, but epilepsy is recorded in nearly as many family histories of (B) as (A), so that the prognosis for patients with a history of epilepsy in the family is nearly as good as for other cases where there is none.

(5) *Mental Age* (as tested by Binet-Simon tests).

(A) *Certified Cases.*

(B) *Non-certified (Self-supporting) Cases.*

Under 10 years . . .	12	Under 10 years . . .	1
10 to 16 years . . .	4	10 to 16 years . . .	6
Adult	2	Adult	11
Not taken	2	Not taken	4
	—		—
	20		22

This is as one would expect. The mentally sound cases are the ones that are likely to prove self-supporting.

(6) *Monthly Incidence of Fits while under Treatment.*

(A) *Certified Cases.*

Average 0 a month	1
Average 2 to 3 a month	6
Average 3 to 6 a month	3
Average 6 to 10 a month	5
Average 10 to 20 a month	2
Average 20 to 30 a month	2
Night terrors	1
	—
	20

(B) *Non-certified (Self-supporting) Cases.*

No fit while under treatment	6
No fit for 1 to 2 years before withdrawal	5
No fit for 3 to 5 years before withdrawal	2
No fit for over 5 years before withdrawal	2
Average 2 to 3 yearly	1
One fit in 3 years	1
Average 4 fits a month	1

Average 6 to 7 a month	1
Average 2 in 3 months	1
1 fit in year before withdrawal	2
	<hr/>
	22

These records are interesting. They clearly show that the hopeful cases are those that quickly react to treatment before the convulsive habit becomes established. According to Dr. Aldren Turner's dictum, already quoted, "No case of epilepsy can be considered *arrested* unless there has been no fit for nine consecutive years, and then in about 10 *per cent.* of these arrested cases a permanent cure may be hoped for." As many of our patients come to us at an early age for education in our special school, and do not leave until they reach the age of sixteen years, we are able to keep records covering a lengthened period of residence in the Colony.

Not only the relatives of patients, but even local authorities, are apt to think that a patient who has been free of fits for a year or two should be removed from the Colony as cured, yet these are the promising cases with respect to which one may hope, if only they are allowed colony treatment for a sufficient number of years, that the disease may be permanently arrested. The epileptic himself is a born optimist, and gets very restive under colony life if the fits have stopped even for a few months. So between the patients, his relatives, guardians and friends, the unfortunate doctor who tries to do his duty is apt to get but scanty gratitude, and is usually accused of selfish motives.

(7) *Educability* (as shown by half-yearly reports).

(A) <i>Certified Cases.</i>				(B) <i>Non-certified Cases.</i>			
Improving	8	Improving	17				
Stationary	9	Stationary	5				
Deteriorating	2	Deteriorating	0				
Uneducable	1	Uneducable	0				
	<hr/>		<hr/>				
	20		22				

In (A) it is surprising that eight should be returned as "improving" in educability, but the explanation is that, in dealing with defectives, a slight improvement is quickly

detected and appreciated. It is improvement from a low standard.

In list (B) five patients are noted as "stationary," but here it is the opposite when, for instance, a boy who usually is bright and intelligent has a dull interval.

(8) *Conduct* (as shown by half-yearly report).

(A) <i>Certified Cases.</i>				(B) <i>Non-certified (Self-supporting) Cases.</i>			
Excellent	.	.	0	Excellent	.	.	2
Good	.	.	7	Good	.	.	13
Poor	.	.	1	Poor	.	.	5
Bad to fair	.	.	9	Bad to fair	.	.	0
Bad	.	.	3	Bad	.	.	0
Troublesome	.	.	0	Troublesome	.	.	2
<hr/>				<hr/>			
20				22			

(9) *Average Daily Dose of Bromide.*

(A) <i>Certified Cases.</i>				(B) <i>Non-certified (Self-supporting) Cases.</i>			
No bromide	.	.	1	.	.	.	8
Not exceeding 10 grs.	.	.	0	.	.	.	1
Not exceeding 20 grs.	.	.	2	.	.	.	6
Not exceeding 30 grs.	.	.	1	.	.	.	2
Over 30, not exceeding 60	.	.	15	.	.	.	5
Over 60 grs. <i>per diem</i>	.	.	1	.	.	.	0
<hr/>				<hr/>			
20				22			

Potassium bromide has been the usual drug given, and ammonium and sodium bromide in a few cases, each patient receiving individual attention. The sight is tested for refractive errors. The teeth are carefully overhauled by a dental surgeon. Digestive errors are corrected, and a special dietary is followed. School is held in the open air as much as possible, play and work hours are all regulated; in fact, a healthy colony life is followed, which is probably of greater importance than the giving of bromide. In some cases benefit has been obtained by giving digitalis in combination with bromide. Arsenic prevents acne.

Fifteen out of the 20 patients in (A) class had daily doses of over 30, but not exceeding 60 grs. of bromide. The anti-bromide enthusiast might say "that *proves* that bromide causes mental deterioration." But it would be a rash conclusion, as from Table 5, it is apparent that 12 out of the 20 patients were under 10 years of age mentally, as tested by the Binet-Simon tests, and there is no proof that the moderate dose of bromide, while helping to control the frequency of the fits, hastened the brain deterioration.

(10) *Period of Residence in Colony.*

(A) *Certified Cases.*

(B) *Non-certified (Self-supporting) Cases.*

Under 1 year	.	.	3	Under 1 year	.	.	3*
1 to 3 years.	.	.	8	1 to 3 years	.	.	6
3 to 5 years.	.	.	5	3 to 5 years	.	.	9
Over 5 years	.	.	4	Over 5 years	.	.	4
			—				—
			20				22

* One absconded.

It is well to point out that very few cases leave the Colony with the consent of the medical officer. They are withdrawn by their relatives against advice, or, if maintained by Education Committees, that support ceases when they reach the age of sixteen years.

(11) *Frequency of Fits before Admission.*

(A) *Certified Cases.*

Not stated	.	.	.	.	.	.	1
Not stated, but occur both day and night	.	.	.	.	.	.	9
Occur by day only.	.	.	.	.	.	.	2
Occur by night only	.	.	.	.	.	.	1
8 to 14 daily	.	.	.	.	.	.	3
1 to 8 weekly	.	.	.	.	.	.	3
1 in 3 weeks.	.	.	.	.	.	.	1
							—
							20

(B) *Non-certified Cases, Partially or Wholly Self-supporting.*

Not stated, but infrequent	3
Not stated, but occur by day and night	4
Occur by day only	5
Occur by night only	5
8 to 12 daily	0
5 to 6 daily	1
1 to 2 a week	1
Fortnightly	1
2 to 3 monthly	1
1 in 6 months	1

 22

From Table (B) it appears as though the prognosis is more favourable the less frequent the fit, and also when the fits occur at a definite time, either by day or night, and less favourable when they occur both by day and by night.

(12) *After-care Report.*

(A) All the certified cases have been transferred to asylums.

(B) *Non-certified Cases, Partially or Wholly Self-supporting.*

Occupation not stated	8
Enlisted in army	6
Joiner	1
Working at Royal Arsenal	1
Handyman	1
Greengrocer	1
Clerk in office	1
Employed at chemical works	1
Sign writer	1
Gardener	1

 22

Partially self-supporting, but still having fits	7
Partially self-supporting, but no fits	1
Wholly self-supporting and no fits	10
Wholly self-supporting, but have occasional fits	4

 22

Twenty Certified

—	(1)	(2)	(3)	(4)	(5)	(6)
A. D. M—, æt. 12 on admission	Combined, but chiefly at night	8 years old	Fall on head	Cousin epileptic, father choreic as boy, paternal uncle phthisical	N.	2-3 a month
A. L. M—, æt. 12	—	Not known	Not known	Unknown	Back- ward 2 years	2 a month
A. G—, male, æt. 6	—	6 mos. old	Unknown, but instru- ments used at birth	Healthy	Not taken	Before admis- sion 8-9 daily, after, 2 a month
G. E—, female, æt. 12	Combined (serial)	7 years old	Sunstroke at 2 years of age	Mother had cancer	10	Serial. One series of over 200 fits in 48 hours; ave- rage 8-9 per month
W. J—, male, æt. 34	Major (day)	19 years, then long interval of 8 years	Unknown	2 sisters epileptic, father intempe- rate	14	3 a month
S. D—, female, æt. 13	Combined, with excess of major and tendency to mania	7 years	Fall ?	Healthy, but mother had cancer of stomach	Not tested	Average 25- 30 a month
J. H—, male, æt. 16	Chiefly major	3 mos.	Convul- sions 4 days after birth	Healthy, but mother died of cancer	12	4-5 a month
E. G—, female, æt. 12	Combined, chiefly major	Un- known	Unknown	Unknown	8	6-8 a month
A. M. R—, female, æt. 11	Combined, with excess of major	5-6 years	Knocked down by bicycle	Maternal aunt died of phthisis	10	6-7 a month
A. J—, male, æt. 8	Minor, and night terrors	2 years	Dropped on head when 18 mos. old	Maternal uncle and aunt died of phthisis, 1 sister died of wasting disease æt. 9 mos.	7	Night terrors and occa- sional minor fits
W. H—, male, æt. 11	Combined	5 years	Fright ?	Mother hysterical	5	26-30 a month
L. W—, female, æt. 9	Combined, with excess of major	3 years	Heredity	Mother and sister epileptic	7	16 a month
F. T—, female, æt. 10	Combined with excess of major	2 mos.	Heredity	Epilepsy on father's side	5	6-10 a month
E. P—, female	Combined, with great excess of majors	3 years	Unknown	Father and pater- nal grandfather died of phthisis	5	8 a month

Cases.

(7)	(8)	(9)	(10)	(11)	(12)
Improving	Fair, very excitable	55 gr.	5 years	Not stated, but fits returned	Certified March 17th, 1913.
Stationary	Bad	40 gr.	1 year	Frequency not stated, occur by day and night	Transferred to Tooting Bec Asylum on Feb. 5th, 1914; from there transferred to Fountain Asylum on Feb. 23rd, 1915. Is in Graylingwell Asylum.
Uneducable	Fair	20 gr.	6 mos.	8-9 daily	
Stationary for last year of residence	Good	70 gr.	4½ years	Not stated, but both by day and night	Inmate of East Riding Asylum, Beverley.
Improving	Good, but a bad moral case	45 gr.	7 mos.	Frequency not stated, but nearly all by day	Certified March 6th, 1912, and again Feb. 24th, 1913. Slight fits every 2-3 days, bad attacks every 2-3 mos.
Stationary	Poor	40 gr.	3½ years	Frequency not stated	Certified Feb. 22nd, 1912, and died in asylum, Jan. 11th, 1915.
Stationary	Good	60 gr.	1 year 8 mos.	Always one a week, but both by day and night	Died in asylum, Jan. 8th, 1915.
Stationary	Bad to fair	20 gr.	2½ years	Frequency not stated, but by day only	In Colney Hatch Asylum.
Improving	Bad to fair	60 gr.	5 years 4 mos.	As many as 12 in a day, longest interval a week	Has frequent fits, August 3rd, 1914, sent to Tooting Bec Asylum, transferred to Leamington Asylum in Oct., 1914.
Improving	Fair	25 gr.	5½ years	Occur both by day and night, chiefly "terrors"	Certified Feb. 12th, 1914, now at Darenth Asylum.
Stationary	Good	50 gr.	4 years 8 mos.	Frequency not stated, but occur both by day and night	Fits about twice a week, now in Waterford Asylum.
Improving	Bad	60 gr.	6½ years	Frequency not stated, but chiefly at night	Certified March, 1914, and inmate of Cane Hill Asylum.
Stationary	Fair	60 gr.	18 mos.	8 weekly	Transferred to Tooting Bec Asylum April 11th, 1914, and on Sept. 18th, 1914, to Darenth.
Improving	Fair	50 gr.	4 years	Frequency not stated, but occur both by day and night	Certified Sept. 15th, 1913, now in Leavesden Asylum.

—	(1)	(2)	(3)	(4)	(5)	(6)
C. W. J—, male, æt. 7	Combined chiefly major	Not known	Unknown	1 brother died of epilepsy	12	4 a month
C. C—, male, æt. 11	Major	4 years	Unknown	Mother hysterical, step-sister in asylum	Not taken	None since admission
C. F. W—, male, æt. 10	Combined chiefly major	12 mos.	Unknown	Father alcoholic	8	2-3 a month
R. S—, female, æt. 11	Combined chiefly major	Between 7-8	Not known	Father alcoholic, maternal father phthisical	10	6 a month
A. E. L—, male, æt. 10	Combined chiefly major	9	Not known	Maternal father had fits, also pater- nal grandmother. Father phthisical	7	2-3 a month
R. T. H—, male, æt. 20	Major	12	Heredity	Mother epileptic, father insane, sister also	Adult	2-3 a month

Twenty-two Cases Partially

F. W. F—, male, æt. 12	Major	10	Heredity ?	Father epileptic	Adult	None since a month after admission
S. S. H—, male, æt. 16	Minor	15	Excessive cigarette smoking	Brother, æt. 3, died in convulsions, grandmother died of cancer	Not taken	Nil while at the Colony
M. A—, male, æt. 26	Combined	14	Unknown	Father alcoholic, mother fainting ? fits	11	4 a month
H. T. M—, male, æt. 12	—	6	Fall from a swing	2 brothers died from convulsions	N.	—
W. H. S—, male, æt. 9	Combined	5	Unknown	A brother and sister epileptic	14	2-3 yearly
W. R. W—, male, æt. 17	Combined	Not given	Unknown	Unknown	15	6-7 a month
R. W—, male, æt. 7	Minor	5	Unknown	Unknown	No record	No fit for 3 years before discharge
W. L—, male, æt. 11	Said to be serial	Since infancy	Sunstroke	4 brothers and sisters had convul- sions, father and mother had con- sumption	Normal	No fit since admission

(7)	(8)	(9)	(10)	(11)	(12)
Stationary	Good	60 gr.	1 year	At intervals 1-19 days, once 4 in 24 hours	Sent to Long Grove Asylum Nov. 16th, 1914, and he died there Feb. 20th, 1915. "Status epilepticus."
Stationary	Fair	Nil	2 years	Frequency not stated, but both by day and night	In the Mental Hospital, Upper Warlingham.
Deteriorating	Bad to fair	40 gr.	3 years	Not stated, but occur both by day and night	Has sometimes 3-4 fits a day. Now in Hellingly Asylum, Jan. 1st, 1915.
Deteriorating	Bad	40 gr.	18 mos.	6-10 a day, largest interval 18 mos.	Sent as an imbecile to Tooting Bec Asylum June 8th, 1914, transferred to Darenth July 15th, 1914.
Improving	Good	40 gr.	6 years	Frequency not stated, but occur in groups both night and day	Certified insane and removed to Hants County Asylum April 6th, 1914.
Improving	Good	40 gr.	8 mos.	Frequency not stated, but occur both by day and night	Is in the Wilts County Asylum.

or Wholly Self-supporting.

Improving	Excellent	20 gr.	6 years	Frequency not stated, but more frequent at night	Apprenticed to joiner at Yatton near Bristol.
Improving	Troublesome	20 gr.	4 mos.	Frequency not stated, but occur both by day and night	Wholly self-supporting at present. Present health good. Has enlisted on two occasions, but was discharged as result of fits. Parents last heard of him from Sailors' Home, Portsmouth.
Stationary	Good	50 gr.	10 mos., withdrawn against medical advice	Fits occurred fortnightly	Partially self-supporting, has occasional fits; health poor.
Improving	Good	Nil	4 years	Fits infrequent	Working at Royal Arsenal, getting £1 a week. Health good, no fits.
Stationary	Good	45 gr.	3 years	Fits occur at all times	Earning 4-5 shillings weekly as a handyman. Present health good. Fits average one a week.
Improving	Fair	60 gr.	1 year	1-2 a week	Self-supporting, no fits, present health good. Has joined the R.H.A., and is now said to be in France.
Stationary	Fair	10 gr.	7 years	Frequency not stated, but occur in the early morning, slight	Partially self-supporting. Present health good. No fits.
Improving	Good	Nil	5 years	Fits occur several in succession, chiefly in bed	Is in the army, health has been good, but is wounded and is coming home. Had only one fit after leaving the Colony.

—	(1)	(2)	(3)	(4)	(5)	(6)
A. L—, male, æt. 13	Major	Not given	Not given	Grandfather epi- leptic	N.	No fits for 3 years
R. E—, male, æt. 11	Major	Not given	Not known	Healthy	11	1 in 3 years
A. B—, male, æt. 12	?	18 mos.	Dentition	1 brother died of convulsions	Not taken	None since admission
H. D—, male, æt. 12	?	11	Unknown	Healthy	N.	None since admission
G. L—, male, æt. 11	Minor	6 weeks old	Unknown	—	14	None for a year before withdrawal
F. M—, male, æt. 13	Major	9	Not given	Paternal grand- father died of phthisis	Adult	None for 18 mos. before withdrawal
H. G. S—, male, æt. 11	—	7	Not given	Healthy	Adult	No fit for 7 years
H. S—, male, æt. 27	Major	18	Unknown	Healthy	Not ex- amined	2 in 3 mos.
W. H. B—, male	Major	10	Not known	Paternal grand- father was epileptic	Normal	No fits since admission
G. W—, male, æt. 22	Combined	Not given	Not known	None	10	1 minor in the year
S. H. W—, male, æt. 11	—	15 mos.	Not known	Father had con- sumption of bowels, mother fainting ? fits, 2 aunts had fits	7	No fit since admission
C. K—, male, æt. 13	Combined	10	Blow on head	Grandfather (pa- ternal) phthisical	N.	No fits for 2 years before discharge
W. S—, male, æt. 12	Major	5	Unknown	An uncle had fits	N.	No fits for 2 years before discharge
R. H. C—, male, æt. 9	Minor	2	Unknown	Healthy	Not ex- amined	No fit for 6 mos. before leaving

(7)	(8)	(9)	(10)	(11)	(12)
Improving	Good	<i>Nil</i>	4 years	Fits infrequent, usually at night	Partially self-supporting, greengrocer, street trading. Health fair, fits at intervals of 5-6 weeks. Engaged in office.
Improving	Good	20 gr.	4½ years	Fits infrequent	
Improving	Good	<i>Nil</i>	4 years	5-6 daily by night and day	Partially self-supporting. Few and slight fits, usually at night; generally good health.
Improving	Good	<i>Nil</i>	4 years	Has fits in groups, not very severe, used to occur in bed, now in the day	Wholly self-supporting. No fits since leaving Colony. Health excellent. Enlisted in the Territorials, now at the front.
Improving	Good	20 gr.	5 years	Frequency not stated, but occur in the daytime	Self-supporting. Health good, free from fits. On leaving the Colony went to sea as steward. Joined the army on outbreak of war, and is now in France.
Improving	Improving, good	15 gr.	4 years	Frequency not stated, but occur in the daytime	Capable of being partially self-supporting. Health very good; has fits frequently in groups, then an interval of a few weeks. Was under detention once for 14 days.
Improving	Good	20 gr.	9 years	Frequency not stated, but occur always at night	Self-supporting. Health excellent, no fit since leaving the Colony. Has enlisted and is now at the front. Left Colony with consent of Medical Superintendent.
Improving	Absconded	45 gr.	3 mos.	Fits in groups, severe. Was in the army 2 years, discharged unfit	Still has fits. Partially self-supporting. Present health good.
Improving	Excellent	<i>Nil</i>	2 years 10 mos.	Fits occur in groups by day only	Self-supporting, working at chemical works, having no fits.
Stationary	Fair	50 gr.	1 year	2-3 at a time, monthly	Partially self-supporting. Present health good, fits every fortnight.
Improving	Fair	<i>Nil</i>	3½ years	Average 1 in 6 mos.	Earns 12 shillings weekly. Health at present good.
Improving	Good	<i>Nil</i>	3 years	Fits occur while patient is asleep	Self-supporting as a sign writer. Enlisted in Territorials, now at the front.
Improving	Good	30 gr.	7 years	Fits occur by day	Went to a situation as under gardener, stayed 18 mos., and gave satisfaction. Then took to drink and fits returned. Cannot now be traced.
Stationary	Fair	30 gr.	2 years	Fits occur both by day and night	Is an only son, much spoilt. Said to be "all right."

The Cholesterol Content of the Serum in Mental Diseases.

By J. CRUICKSHANK, M.D., and C. J. TISDALL, M.B., Ch.B.,
Crichton Royal Institution, Dumfries.

WITHIN recent years a considerable amount of work has been done upon the bio-chemistry of cholesterol, and valuable information has been acquired which has thrown light upon the important part which this substance plays in numerous physiological and pathological states. It will be of value in connection with the results described in this paper to shortly review some of the more outstanding facts which have been discovered.

It has been known for some time that cholesterol is a constant constituent of every cell in the body, and that substances of closely allied chemical composition are widely distributed in plant tissues. In certain organs it is very abundant, for example, in the white matter of the central nervous system, where it is present to the extent of 10 *per cent.* of the dried substance, and in the cortical portion of the suprarenals. As a rule it is present in two forms: (1) free cholesterol, and (2) cholesterol combined with various fatty acids, *e.g.*, cholesterol oleate, palmitate, stearate, etc. The general term cholesterol-ester is applied to the latter form. In blood serum cholesterol is chiefly in the form of cholesterol-ester, only a small amount of free cholesterol being normally present. It is an important constituent of bile, in the form of free cholesterol, and the different forms in which cholesterol exists in the two fluids, serum and bile, should be noted, as this fact is of importance in the study of cholesterol metabolism. The work of Dorée, Gardner, and others (1) has suggested that in the metabolism of cholesterol there is a very definite circulation of a conservative nature, the free cholesterol of the bile being reabsorbed in the intestine, probably as cholesterol-esters, and carried by the blood stream to various tissues to be made use of in the building up of new cells. The changes which occur in cholesterol metabolism in various pathological states have been widely investigated (2). It has been found that the cholesterol content of the blood, bile, and suprarenals may vary within very wide limits. Normally, the total cholesterol (that is to say, both free and combined cholesterol) of the blood serum is from 1.5 to 1.8 grm. per litre, of the bile 1.5 to 1.6 grm. per litre. In pregnancy the content in

the blood may rise to 4.25 grm. per litre, and, associated with this, there is corresponding increase in the amount of free cholesterol in the bile. It has been suggested that the increased cholesterol content in the pregnant state is due to disturbance of the ovarian functions. An increase in blood cholesterol also occurs in cases of adiposity, diabetes mellitus, xanthoma, arteriosclerosis, chronic nephritis, eclampsia, and chronic jaundice. The amount of cholesterol in the bile in cases of gall-stone is unusually large, and the formation of gall-stones (which are frequently composed of almost pure cholesterol) is now regarded as a direct sequence of this increase.

Of the total cholesterol in the body the great bulk is, however, localised in the central nervous system, particularly in the white matter of the brain. The function of this very considerable amount of cholesterol is unknown. Lorrain Smith and Mair (3) found that in general paralysis there is practically no diminution of the amount of cholesterol, and that in the development of the brain the amount of cholesterol relative to other lipoids remains remarkably constant.

In cerebro-spinal fluid cholesterol may be found in many psychoses, both in the form of crystals and by means of the Liebermann colour test. In a recent paper Weston (4) describes the presence of cholesterol in the spinal fluids from a great variety of psychoses, the average amount of cholesterol in cases of epilepsy, dementia præcox, and organic dementia being greater than in general paralysis, senile dementia, and in manic-depressive psychoses. Crystals of cholesterol-esters, which are readily recognised by means of the polarising microscope, may also be found. In a case of optic atrophy examined by us the spinal fluid was distinctly turbid from the presence of such crystals.

It seemed to us that a systematic examination of the amount of cholesterol in the sera of cases of mental diseases might be of interest, particularly if the results were associated with observations on the cholesterol content of the suprarenals and the bile. For the estimation of cholesterol two methods are at present in general use. The first, which is extremely accurate, is the digitonin method of Windaus (5), and is employed where larger amounts of cholesterol can be obtained. This method depends on the fact that digitonin, a glucoside of the digitalis series, combines under suitable circumstances with cholesterol to form a stable crystalline compound, digitonin-

cholesteride. The amount of cholesterol present in this compound is constant and in the ratio of one part in four parts of digitonin-cholesteride. This method is the most convenient for the estimation of cholesterol in brain and other tissues. The second method, a colorimetric one, is suitable for the estimation of small amounts of cholesterol, and has been used by us in combination with a Könisberger-Autenrieth colorimeter. The method, as we have used it, is as follows: Blood to the amount of about 10 c.c. is drawn off from the median basilic vein and allowed to clot; the serum is separated; 1 c.c. of serum is pipetted off, placed in a small flask, 20 c.c. of 2 *per cent.* caustic soda added, and the flask heated on the water-bath for two hours. As a result of this treatment with caustic soda the cholesterol-esters are saponified, and the cholesterol separated as free cholesterol. The fluid in the flask is now transferred to a separating funnel and shaken for a period of two or three minutes with two to three times its volume of ether. The mixture is allowed to settle, the ether drawn off, and the fluid again shaken with a fresh amount of ether. The ether extracts are accumulated in an evaporating basin and the ether driven off on the water-bath. The residue in the basin is dissolved in 20 c.c. of chloroform. Five c.c. of this solution are carefully pipetted into a small test tube, and 2 c.c. of acetic anhydride and 0.1 c.c. of strong sulphuric acid are added. The tube is shaken to ensure thorough mixture and placed in a dark cupboard for twenty-five minutes. The depth of colour of the fluid is then compared with the standard coloured fluid in the colorimeter, and the amount of cholesterol calculated by reference to a curve which has previously been made by the use of known amounts of cholesterol in combination with the standard fluid of the colorimeter. This method in our hands has given very uniform results. The accuracy of the colorimetric method has been on occasion controlled by comparison of the findings with those obtained by the use of the digitonin method.

The estimation of the "free" cholesterol of the serum is carried out with another sample of the serum. One c.c. of the serum is diluted with 20 c.c. of water and extracted with ether. The procedure is then similar to that described above. The amount of "combined" or ester-cholesterol is obtained by subtracting the amount of "free" cholesterol from the total cholesterol.

The total number of sera examined was about 120. The accompanying tables give a sample of the kind of results which were obtained. Unfortunately it is not possible for us to give in detail the results of the examination of the whole 120 sera. Owing to a serious outbreak of fire in the laboratory at the institution, practically the whole of the records of this work, the colorimeter, and the stock of standard coloured fluid, were destroyed. The results shown in the tables were fortunately in another part of the laboratory, and are the only details of these experiments which escaped destruction. An examination of the tables shows that, on the whole, the cases of general paralysis had a very low cholesterol content and the cases of dementia præcox a content considerably higher than normal. The majority of the other cases gave figures which were slightly under normal limits. A few cases of chronic mania gave readings as low as some of the cases of general paralysis. In one case of mania, in which extreme excitement had continued for a period of seven months, there was a progressive fall in cholesterol from 1·8 grm. at the beginning of the attack to 0·2 grm. per litre at the end of the attack. All the epileptics gave practically normal readings. With the exception of early cases of dementia præcox there is, therefore, on the whole a distinct tendency in cases of prolonged mental disease for the cholesterol content of the serum to fall. The cases of general paralysis with one exception were in the second or third stage of the disease. In the exceptional case, in the first stage, the cholesterol content was 0·8 grm. per litre.

Attention has been drawn above to the fact that the cholesterol content of the suprarenals increases or decreases with the cholesterol of the blood. With regard to the increased cholesterol in cases of dementia præcox it should be noted that several observers have found that hypertrophy of the suprarenals frequently occurs in this disease.

Attention should also be drawn to the contrast which exists between the high cholesterol content of the serum reported in cases of chronic nephritis and arteriosclerosis, and the low content observed in our cases of general paralysis, a disease in which diffuse degenerative changes in the blood vessels are well marked. We have in all our cases endeavoured, as far as possible, to select for examination only

those cases which showed no pronounced renal or arterial changes.

We would suggest that a possible explanation of the above results may be found in the different degrees of activity of the sexual and reproductive tissues in the different psychoses. The high content of cholesterol in the dementia præcox cases would thus be an expression of an unusual degree of activity of the sexual glands, the low content of cholesterol in the advanced general paralytics an index of great loss of functional activity of the same organs.

It was our intention when this work was commenced to examine, in addition to the blood, the cholesterol content of suprarenals and bile. Owing, however, to the destruction of our material by fire, and to the interruption of research work by the war and the departure of Dr. Tisdall on military service, we have thought it advisable to put on record at the present time this preliminary note of the serum examinations alone.

TABLE I.

Case.	Mental disease.			Total cholesterol in grm. per litre of serum.
1	.	.	General paralysis . . .	0.4
2	.	.	ditto . . .	0.4
3	.	.	ditto . . .	0.8
4	.	.	ditto . . .	0.2
5	.	.	ditto . . .	0.2
6	.	.	ditto . . .	0.4
7	.	.	ditto . . .	0.6
8	.	.	ditto . . .	0.2
9	.	.	ditto . . .	0.8
10	.	.	ditto . . .	0.2
11	.	.	Dementia præcox . . .	2.5
12	.	.	ditto . . .	2.2
13	.	.	ditto . . .	2.6
14	.	.	ditto . . .	3.5
15	.	.	ditto . . .	2.8
16	.	.	ditto . . .	2.2
17	.	.	ditto . . .	3.1
18	.	.	ditto . . .	1.6
19	.	.	ditto . . .	2.2
20	.	.	ditto . . .	1.8

TABLE II.

Case.	Mental disease.	Total cholesterol in grm. per litre of serum.
21 . .	Chronic melancholia . .	1·8
22 . .	ditto . .	1·1
23 . .	ditto . .	1·0
24 . .	Agitated melancholia . .	2·1
25 . .	Chronic mania . .	0·2
26 . .	ditto . .	0·8
27 . .	ditto (mild type) . .	1·1
28 . .	Alcoholic insanity (chronic) .	0·6
29 . .	ditto (acute) . .	1·8
30 . .	ditto (acute) . .	1·0
31 . .	Epileptic insanity . .	1·3
32 . .	ditto . .	1·4
33 . .	ditto . .	1·2
34 . .	ditto . .	1·5
35 . .	Terminal dementia . .	1·0
36 . .	ditto . .	0·3
37 . .	ditto . .	1·1
38 . .	Confusional insanity . .	1·0
39 . .	ditto . .	1·1
40 . .	ditto . .	2·1

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Use of Asylums as Military Hospitals. By Lieut.-Col.
WILLIAM VINCENT, M.D., R.A.M.C., Wharncliffe War
Hospital.

THE South Yorkshire Asylum, Wadsley, near Sheffield, was offered to the War Office by the West Riding Asylums Board under the scheme prepared by the Board of Control.

The transferring of the inmates—nearly 1,700—was commenced on March 16th, 1915, and completed on March 30th. The institution was thus cleared in a fortnight. The great majority of the patients (some 1,400) were transferred to the sister asylums—Menston, Storthes Hall, and Wakefield—by motor char-à-bancs. The remainder were sent to various out-county asylums—Hull, Leicester, Nottingham, Lincoln, etc. The private class of male and female patients was transferred to Scalebor Park and Menston Asylums respectively. All the patients were transferred without mishap. Twelve patients only were retained at the farm residence.

With the approval of the War Office the institution was named the Wharncliffe War Hospital.

It was at first assumed that the hospital would afford accommodation for some 2,000 sick and wounded soldiers. This was found impossible. Not only would there have been undue overcrowding, but part of the building had to be set aside in order to provide accommodation for the large staff of sisters and staff-nurses, and for the R.A.M.C. *personnel*.

The number of beds available at present is 1,500, but it is not improbable that this number will eventually be exceeded.

The structural and other alterations necessary in order to adapt the institution for the purpose of nursing sick and wounded soldiers were considered by the Committee of Visitors, and the architect of the Asylums Board and the clerk of works were instructed to carry them out. The work is now practically complete.

An "Emergency and Consultative" Committee was formed, in addition to the General Committee, before the chairman and members of which all recommendations and suggestions made by the administrator or inspecting officers are placed.

Authority was given by the War Office, through the Board of Control, for the committee to carry out such structural alterations as were deemed necessary.

The difficulties associated with the difference of level of the various buildings have been overcome as far as possible. A temporary wooden bridge in the male division has proved very useful. A small electric service lift has been placed in position. If lifts for conveying patients, supplies, etc., to the upper floors had been approved, a smaller staff of orderlies would have been required than is at present the case. A very considerable amount of work was necessary in order to adapt the various wards and dormitories. In the upper floor dormitories extra baths and sculleries, with an adequate water supply, were added, and additional lighting in all dormitories and side-rooms was quickly carried out. Gas for heating purposes, for boiling water, and for sterilising instruments, etc., was introduced where required on all floors.

A small dormitory and a day-room were fitted up, and two excellent operating theatres were thus obtained. A commodious "X-ray" department is in close proximity to one of the operating theatres, so that patients can readily and safely be subjected to X-ray examination when under the anæsthetic, if necessary. The want of electric light was met by having a special cable laid from the nearest point available on the Sheffield city boundary. Electricity was thus obtained from the Sheffield supply for the operating theatres and offices, the X-ray department, and for lighting the stage and hall during entertainments—thus eliminating a possible source of danger from fire. Additional precautions against fire have also been taken, and hand fire extinguishers have been placed where deemed necessary.

All day-rooms and corridors are occupied as wards—the corridors leading to the operation rooms excepted—and one large day-room has been fitted up as a billiard-room for convalescent patients.

Three blocks with 1,158 beds are reserved for surgical cases, and one block, with 342 beds, for medical cases. The total number of beds available for sick and wounded soldiers will probably remain at 1,500, but 220 additional beds could be placed in position should necessity arise.

Suitable accommodation for the matron, the sisters and staff-nurses, and R.A.M.C. orderlies was provided by the following arrangements. The whole asylum staff of attendants

and nurses was permitted to live out, the latter living with relatives or friends in close vicinity to the hospital. The nurses' residence, together with the patients' laundry residence, afford accommodation for the matron and nursing staff. These buildings, in which over 100 beds are available, are apart from the hospital, but connected by corridors. The dormitories of the laundry residence were divided up into cubicles containing one, two, and in some instances three, beds. A separate kitchen and offices, dining and recreation rooms have been found for the nursing staff appointed by the War Office. The whole is under control of a "home sister" appointed for this duty by the matron.

The asylum nurses are acting as "probationer nurses." All except ten live out, and come on duty at 7 a.m. A large day-room in the laundry residence is placed at their disposal as a recreation room when they are off duty during the day.

The asylum attendants are enlisted for "home and local" service, and are employed in the wards, offices, laundry, and gardens.

The R.A.M.C. *personnel*, N.C.Os. and men, are at present occupying the upper floor of one of the detached blocks. This floor, which accommodates 210 men, thus becomes a barracks for both the day and night staffs. This arrangement has saved the cost and trouble of erecting hutment barracks for these men, but has, naturally, restricted the accommodation which otherwise would have been available for sick and wounded. It, however, has met with approval from headquarters and may continue.

The loss of patients' labour in the kitchens, laundry, out-working parties, and gardens has been met by the appointment of a temporary staff who are employed under the housekeeper, second chief nurse, head gardener, farm bailiff, and other asylum officials. The retention of twelve patients at the farm has proved useful. Our chief nurse has taken charge of the sewing-room and mending department. A temporary staff of women is employed in the kitchens and laundry, and women are also employed as ward-cleaners. This enables us to employ a smaller staff of men. The entire staff of nursing sisters, probationers, R.A.M.C. and institution orderlies, and temporary workers in the kitchens, laundry, and gardens totals up to over 650. The greatly increased demand on workers in both

the kitchen and laundry departments has been met with credit to those in charge.

The Clerk of Works' Department remains unchanged. Work is carried out under the supervision of the architect to the Asylums Board, and clerk of works. None of the artisans has been required to enlist.

The clerk and steward (who has not been accorded military rank) has charge of, and is responsible for, all supplies, and also for the payment of salaries and wages of all the visiting and resident medical and other officers, and the asylum employees and temporary staff. A very great amount of work has thus fallen upon the clerk and steward's department, and under very different conditions and requirements. Two clerks are retained in his office in order to carry out necessary work relating to the patients, as under the Lunacy Act this institution is still an asylum.

The work of the stores department has been adequately met by an increased staff. Considerable change was necessary to meet the military requirements, and enormously increased output. This department has risen to the occasion in a manner that merits very great praise.

The R.A.M.C. *personnel* and the masseurs are paid by the quartermaster appointed by the War Office, who is acting as company officer. The former tailors' shop, now the clothing department, and the shoemakers' shop, the "pack stores," are under his control.

The changes in the kitchen department have been very great. The whole system has been re-organised. For the nursing staff appointed by the War Office a separate kitchen is available under the supervision of the matron. All cooking for the remaining staff, R.A.M.C. *personnel*, and patients is done partly in the main kitchen, under the direction of the housekeeper, and partly in the smaller kitchen attached to the medical block.

The isolation hospital is kept prepared for the reception of any case of an infectious nature should such arise.

The clothing of all men coming from the Front is passed through the disinfectant at the isolation hospital immediately on arrival, and before being received into the pack stores.

The medical staff consists of six operating surgeons, three visiting physicians, and an ophthalmic surgeon, while four

operating surgeons, with six medical and surgical assistants and a pathologist are resident.

An X-ray expert and a sufficient number of anæsthetists attend daily ; dental surgeons twice weekly. The local medical officer of health attends as sanitary expert when required, and all cases of an infectious nature are placed under his care. Excellent massage work is carried out by three ladies and two masseurs.

The War Office was considered in possession of the institution on April 1st, and the work of adapting it as a hospital was sufficiently complete in six weeks to enable sick and wounded to be received. The first convoy was received on May 21st. The number of convoys received to date has been 16, with a total number of 2,592 overseas men. The discharges have been 1,670. Of these 1,647 have been discharged fit for duty, 23 as unfit for further service, and 15 have died.

The transport of the wounded from the station to the hospital (a distance of four miles) is carried out most effectually. The whole of the transport arrangements originally organised by Col. Connell, of the 3rd Northern General Hospital, have been placed at our disposal. Over 80 stretchers are available.

The duties of the Registrar have been taken over by the Senior Assistant Medical Officer, Dr. D. Gillespie, to whom a temporary commission with rank of major has been accorded.

This hospital, in conjunction with the other hospitals in Sheffield, receives help from the "Soldiers' Personal Comforts Depot," organised and carried out by ladies of Sheffield and the surrounding districts. Breakfasts and teas, and various invalid dainties, hospital requisites, clothing, tobacco, etc., are distributed among the men. A "Soldiers' Comforts Fund," to which many people have kindly subscribed, has proved invaluable, as means are thus found to meet small requirements, the money for which would otherwise have been difficult to obtain.

The work of converting this asylum into a hospital for the reception of sick and wounded soldiers has necessarily involved much anxiety, but results have shown that it has in every way justified the expense and labour which have been incurred.



Statue of Sekhem-uatch-taui-Rā, King of Egypt, about B.C. 2000.

To illustrate paper by Dr. R. H. STEEN.

British Museum.

Adlard & West Newman.



Māhu, Director of Works, and his wife Tuat. XIXth Dynasty.

To illustrate paper by Dr. R. H. STEEN.

W. A. Mansell & Co., photo.

Aillard & West Newman.



Amenhetep III. XVIIIth Dynasty.

To illustrate paper by Dr. R. H. STEEN.

W. A. Mansell & Co., photo.

Adlard & West Newman.

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To illustrate paper by Dr. R. H. STEEN.

Adlard & West Newman.

Clinical Notes and Cases.

A Characteristic Attitude assumed by many Cases of Dementia Præcox. By R. H. STEEN, M.D.Lond., M.R.C.P.Lond.

THE accompanying photograph illustrates an attitude when sitting frequently adopted by many cases of dementia præcox. The point to which special attention is directed is the position of the arms and hands. The arms are held close to the trunk, with, as a rule, the elbow-joint in a condition of stiff extension and the hands in pronation, and resting on the lower part of the thighs, or even on the knees. When the photograph was taken there was no special posing for the purpose of this note, the subjects merely being told to sit down. In the wards I have seen these particular patients as well as others maintain this position for hours at a time. They sit, as a rule, rigidly upright, for example, in the case of the man shown, whose head is erect with the eyes staring forwards. In other cases the body and head may be bent slightly forwards. Most frequently the feet and knees are found to be close together, but, as in the case of the woman on the extreme right, the legs may be kept apart.

I believe in most cases the muscles of the arms are in a condition of rigidity, but when I try to test the point the patient at once relaxes. The hands are slightly œdematous and of bluish colour, indicating bad circulation. The patients are all cases of dementia præcox of long standing, with the exception of the man, whose illness has lasted only twelve months. I am unable to suggest any explanation of this phenomenon. It is possible that it is an example of reversion. It is certainly well seen in the statues of ancient Egypt (see illustrations). I have therefore named it the "Ancient Egyptian attitude." I am drawing attention to the matter, as it does not appear to be described in any text-book, and may be of interest to the readers of the Journal.

A Case of "Status Epilepticus" and Death due to Cerebral Cysts of Cysticercus Cellulosæ (Larvæ of Tænia solium). By G. E. PEACHELL, M.D., B.S. Lond., M.R.C.S., L.R.C.P., Medical Superintendent, Isle of Wight County Asylum.

As this is a fairly rare condition, the following case is considered worth publishing :

R. P—, æt. 39, married, a private in the R.F.A., was admitted to the Isle of Wight County Asylum on January 2nd, 1915, from a Red Cross Hospital in a condition of status epilepticus. The history obtained from his wife was interesting. He joined the Army when about 18, and spent six years in India. He took part in the South African War for fifteen months. He returned to England in 1903, married, and had several healthy children, and had lived at Dorchester for the last ten years. At the outbreak of war he was called up on the Reserve, and sent to France with the B.E.F., and was in the battle of the Aisne. Early in October he developed "epilepsy," and was invalided to England. He had always been strong and healthy till then, and never had a fit previously. Under treatment he improved, and was on sick furlough, when in November he had a severe epileptic attack, and was readmitted to a military hospital. He then became sullen, drowsy, and irritable, with occasional slight fits till December 20th, when he had three severe attacks, but came round from them, and was able to write a clear letter to his wife on December 26th. On January 1st, 1915, he started having severe fits, and these continued up to his admission twenty-four hours later.

Condition on admission.—Well developed and strongly built. Marked brown pigmentation of almost the whole of the trunk. Temperature 102° F.; pulse weak and rapid. The fit was rather of Jacksonian type, commencing in tonic spasms, followed by clonic convulsions of the left facial muscle group; it then spread to the left arm and leg. The right side of the body was affected later, but only in slight degree. There was right conjugate deviation. It was hard to estimate whether there was any sensory change, but in the brief intervals between the fits he was able to articulate in a low voice, and in a fairly coherent manner. The eyes were examined with difficulty, but there was no apparent optic neuritis or ocular cysts. The fits became more frequent, and for the last six hours before death were continuous. He died thirty-six hours after admission.

Post-mortem.—The skull cap and dura mater were normal. The vessels of the pia-arachnoid were congested, and springing from the membrane were numerous, small, oval, and rounded encapsulated cysts, mostly the size of a pea, which were scattered over both hemispheres, and to a lesser extent over the cerebellum. They were about seventy in number, and for the most part were attached to the pia, and dipped down into the cortex, but in some cases the cysts were actually in the

grey matter ; there were no surrounding inflammatory changes in the brain-tissue. They were most numerous in the right Rolandic area, this probably accounting for the convulsive fits starting and being mostly confined to the left side. There were no cysts in the ventricles or basal ganglia. The brain, which weighed 45 oz., appeared otherwise normal. All the other organs of the body appeared healthy, and there were no signs of cysts in the muscles or elsewhere, only in the brain. The stomach and intestines were normal. There was no sign of a tapeworm. The spinal cord was not examined.

Pathological examination.—To the naked eye, and examined with a lens, the cyst wall was composed of an outer hard chitinous layer, and an inner thin lining membrane, with villous processes in several instances ; some of the contents were cheesy and the others of a harder calcified nature. I submitted specimens to my friend, Dr. B. H. Spilsbury, Pathologist to St. Mary's Hospital, to whom I am much indebted for kindly examining. He reports : "I have no doubt they are examples of *Cysticercus cellulosæ*. They all have a thick fibrous capsule with a little round-celled infiltration outside it. One cyst appeared completely occupied with granulation tissue, but others were filled with an amorphous debris containing cholesterin crystals, and showing early calcification. In some there is necrotic structure which I believe to be a scolex, and in teased fragments of the cyst contents I have found portions of hooklets." I have only once previously met with such a case.

Through the kindness of Dr. Tattersall, Assistant Medical Officer of L.C. Asylum, Hanwell, and of Dr. Elgee, Acting Medical Superintendent of the Epileptic Colony, Epsom, I am able to record another case of epilepsy due to the same cause :

E. J. B—, at present a patient in the Epileptic Colony, Epsom, started having epileptic attacks when fighting in the South African War, and was admitted to Hanwell soon after the war. He had various cystic nodules on the arms, legs, and tongue, and one removed and sectioned showed it to be *Cysticercus cellulosæ*. Blood examination showed a marked excess of eosinophiles (7.25 per cent.). He was admitted on three occasions to Hanwell, and under treatment his fits greatly diminished, so that he only had one on rare occasions. On his discharge he usually took to drink, and his fits increased again. The fits were accompanied by complete unconsciousness, but on one occasion the convulsive attack was of the Jacksonian type—*i.e.* he stated that he was quite conscious, and that he felt pins and needles on left side of tongue, followed by contractions of left angle of mouth and side of face. He was transferred to the Epileptic Colony on April 12th, 1912. Dr. Elgee reports in August, 1915 : "He is a weak-minded man, rather grandiose, lacking in self-control, and often quarrelsome. During the last six months he has had twenty-two fits, and they were all of the major type. He is in quite good health, and the only evidence of cysticercus he has presented since being here is a small cyst on the right under surface of his tongue which is still present."

I have heard of another case which was trephined at a London hospital for cerebral tumour producing localising symptoms, when several cysts of this nature were met with. The case I have recorded suggested the diagnosis of a localised cerebral tumour.

Occasional Notes.

A Statistical Intermission.

AMONG the many duties of life which have had to be thrown overboard in consequence of war strain is that of recording and tabulating facts connected with asylum experiences. It certainly would be undesirable that a process, which at the best of times is but a burden to many, should be continued when the asylum, more than any other class of institution, is heavily stressed by an increase in function accompanied by a notable decrease in the means of performing function. Nevertheless it cannot be denied that a breach in a long continued series of medical observations is in itself somewhat of a misfortune.

The Board of Control, in a recently published circular, has informed those hitherto responsible for certain returns that, while the civil register of admissions must be rigorously kept going, the medical register of admissions may be completely jettisoned. The same treatment has been extended to the death and discharge registers, that is to say, the civil facts must be preserved, while those parts of the record which have to do with the medical aspects of insanity may be dispensed with. If there is no need to note the latter, we fear that there will be a general disposition to let them lapse altogether. We, however, suggest that a valuable portion of the medical facts can be preserved at the cost of exceedingly little trouble.

There are two phases of statistical work, the one of ascertaining and recording experiences as they arise, the other of summation and elaboration at stated intervals. The latter can safely be entirely abandoned. A great point about a register, which was made when our statistical system was proposed, was that, given the entry of facts, those facts could be worked

up years after, the register going to sleep in the meantime. Now, if we throw all tabulation, summation, elaboration, and correlation to the winds for the present, where is there any difficulty in recording, say, the ætiology and classification of each case admitted? We take it that no physician can possibly form a satisfactory estimate of the nature and prospects of a case until he has come to some conclusion in his own mind with respect to each of these two factors. The trouble therefore is reduced to the mere putting down his formed ideas in a space already prepared for them—a piece of purely ministerial work, which could well be done by those who have no longer to bear the burden of preparing the much heavier load of statistics. We quite recognise that some caution will be called for in accepting at full value any records made during the absence on war work of so many skilled observers. But we may anticipate that those skilled observers who are left necessarily to conduct the asylums will be prepared to take some little extra trouble to this end, just as there were men who recorded many things of interest in asylum life for years before statistics were thought of as a regular part of psychiatry.

If statistics are of worth at any time, surely the present is a time when they should be most valuable. Strikes, famines, and other stresses have yielded valuable returns to earnest observers; shall the present opportunity afforded by the operations of the greatest stress that has ever fallen on this or any other nation be wasted? We may confidently anticipate that the many good men who have been called up from our ranks to take charge of those on whom war stress has fallen most directly will think it incumbent on them to render some generalised account of their experiences; we may trust also that those who have been left behind will not neglect to note and report on their cases, which have only indirect relations to the stress, in such a manner as to advance psychiatry. To give true value to the work of either some enumeration is absolutely needful.

Part II.—Reviews.

First Annual Report of the General Board of Control for Scotland.
Edinburgh : H.M. Stationery Office ; London : Wyman & Sons,
Limited ; or Dublin : E. Ponsonby. Pp. lxxxiii and 162.
Price 1s.

Under the Mental Deficiency and Lunacy (Scotland) Act, which came into force on May 15th, 1914, the former General Board of Commissioners in Lunacy for Scotland was merged in the General Board of Control for Scotland ; and the present Bluebook is the first annual report of the new Board. In its re-constitution the *personnel* of the Board was increased by one medical commissioner and two deputy medical commissioners (of whom one must be a woman) ; and, in addition to the duties incumbent on it under previous lunacy statutes, the Board of Control is now charged with the general superintendence of matters relating to the supervision, protection, and control of mental defectives. The first section of the report deals with these new duties, and shows the scheme of the Act by reviewing the powers given to the various authorities recognised or constituted under its provisions. These may be shortly sketched as follows :—

It is the duty of the parents or guardians of children between five and sixteen years of age, who are defectives within the meaning of the Act, to make provision for the education, proper care, and supervision of such children. When there is no known parent or guardian the Parish Council acts *in loco parentis*. While an idiot or imbecile may be placed by his parent or guardian in an institution for defectives, or under guardianship with the consent of the Board, upon the certificate of two duly qualified medical men, a defective whose condition is not such as to amount to idiocy or imbecility cannot be similarly dealt with except at the instance of his parents, and then only if he is under twenty-one years of age. When the guardian is unable to make adequate provision for the education and care of a defective child between five and sixteen years of age, the School Board must act as the local authority concerned, either under the Education of Defective Children Act (1906–1908), or under the Mental Deficiency Act. The School Board has to decide (*a*) whether a child is, owing to mental defect, permanently incapable of receiving proper benefit from instruction in ordinary schools, and (*b*) whether such a child is capable of receiving benefit, or further benefit, from instruction in special schools or classes, or of receiving such instruction without detriment to the interests of other children. If a defective child is capable of receiving benefit from instruction in special schools or classes it is the duty of the School Board to make provision accordingly. As, however, the great majority of School Boards possess no such facilities for the education of mentally defective children, the Scotch Education Department has, by circular, indicated that in such circumstances children who would otherwise be suitable for special schools or classes may be sent to certified institutions under the Mental Deficiency Act. The School Board has also

the duty of ascertaining what children within its area are defective within the meaning of the Act, and of notifying to the Parish Council and the General Board of Control the names of such children as are incapable of being educated in special schools or classes, or of obtaining benefit from special institutions. The School Board has also to intimate in a similar way the names of defective children whose discharge from the special arrangements made for them by the School Board is impending by reason of their attaining the age of sixteen years, in whose cases the School Board is of opinion that it would be to their benefit that they should be sent to, or remain in, an institution, or be placed or continued under due guardianship. When a defective child passes out of the care of the School Board, either on account of being ineducable or on attaining the age of sixteen, the Parish Council (if there is no parent or guardian able to act) becomes the local authority responsible. It is also the duty of the Parish Council to ascertain what persons of sixteen years or over, within their parish, are defectives subject to be dealt with under the Act, otherwise than at the instance of their parents or guardians, and to take steps for placing them in institutions, or under guardianship. With the consent of parents or guardians all defectives under twenty-one years of age for whom Parish Councils are responsible may be placed by them in institutions, or under guardianship, without a judicial order; in all other instances the Parish Council must obtain a judicial order before they can deal with a defective under the Act. Regulations have also been made for dealing with mental defectives who are violent or dangerous, or who are found in criminal institutions, such as prisons or reformatories, or who are neglected or cruelly treated.

Defectives committed to care in the statutory manner may be placed in (a) Certified Institutions, (b) Certified Houses, (c) State Institutions, (d) Private Dwellings, or (e) Places of Safety. The duty of providing accommodation for defectives sent to institutions is imposed on the District Boards of Control, which take the place of the former District Boards of Lunacy. The constitution of these Boards has been altered by the addition of representatives from the Parish Councils to the extent of one-third of all the members of the Board, and by the enactment that, if there are no women on the Board, women (not more than two) shall be co-opted in addition to the existing members. Just as the District Lunacy Boards provided the necessary institutional accommodation for the insane in their districts, the District Boards of Control have to provide the institutional accommodation required for the mental defectives; and these buildings, being sanctioned by the General Board, are certified institutions. A certified house is a house or institution provided by a society or private individual for the reception for profit of private patients which has been certified by the General Board. A State institution is an institution for the care of defectives of violent or dangerous propensities, established by the authority of the Secretary for Scotland, and managed by the Prison Commissioners, and two of the paid Commissioners of the General Board of Control. Private dwellings may be used for the reception of defectives placed under guardianship. Not more than one defective may be received under guardianship into any private dwelling, unless the occupier of such

dwelling holds a license from the Board. Such a license may permit the occupier of the house to receive not more than four defectives at any one time. A place of safety means any place of detention, such as a poorhouse, police station, hospital, etc., the occupier of which is willing to receive temporarily persons who may be taken there under the Act.

The judicial order for the detention of a defective is obtainable upon an application to the Sheriff by petition. A parent or guardian, a local authority concerned, the procurator fiscal, or the Board may present the petition. The authority for detention given by the order ceases at certain definite periods, unless it is duly renewed under the statutory regulations. The Act confers upon the Sheriff the same power as regards the citation of the defective and others, the summoning and examination of witnesses, the administration of oaths, the awarding of expenses and otherwise, as if he were acting in the exercise of his ordinary civil jurisdiction. This is in sharp contrast to the more or less administrative duty performed by the Sheriff in granting orders for the confinement of lunatics, where the validity of the medical certificates and the conformity of the various parts of the schedules to the requirements of the statute have alone to be considered.

The number and distribution of certified mental defectives on January 1st, 1915, was as follows: In certified institutions for adults, 51; in certified institutions for juveniles, 156; and in private dwellings, 88. Except 16 private cases, all of these were "aided" patients. Up to the same date six institutions had been certified for receiving mental defectives under the Act. Of these, the two institutions at Baldovan and Larbert, which have been in existence for many years, and were well known as institutions for the Care and Training of Imbecile Children, have now become institutions for the Care and Treatment of Juvenile Defectives. The Waverley Park Home at Kirkintilloch, which was founded by the Glasgow Association for the Care of the Feeble-minded, is certified for the reception of juvenile female defectives of school age, and capable of benefiting by education. The three other institutions—namely, Grierson Hall, Middleton Hall, and Stoneyetts—are for the care of adult defectives, and are connected respectively with the Crichton Royal Institution (Dumfries), the Edinburgh District Board of Control, and the Parish Council of Glasgow. Under the power given by the Act, the General Board of Control have obtained through the Scotch Education Department returns from School Boards showing all children ascertained to be mentally defective. About 1000 children were thus intimated, and are being visited and reported on by the Deputy Commissioners. In addition, numerous defectives, both children and adults, have been reported by Parish Councils, and are under the consideration of the General Board. The suitable cases requiring non-institutional care are certified, and placed under guardianship in private dwellings.

The portion of the Blue-book dealing with lunacy gives the usual statistical and other information in regard to the insane. On January 1st, 1915, exclusive of insane persons maintained at home by their natural guardians, there were in Scotland 19,557 insane persons, of whom the General Board had official cognizance. That figure includes

those inmates of training schools for imbecile children who have not been certified under the Mental Deficiency Act, and the inmates of the Criminal Lunatic Department of Perth Prison. Of the total number, 2,621 were maintained from private sources, 16,870 by parochial rates, and 66 at the expense of the State. As the number on January 1st, 1914, was 19,346, an increase had taken place during the past year of 211.

In training schools for imbecile children the number resident under the Lunacy Acts is 82 less than last year. This decrease is accounted for by the certification under the Mental Deficiency Act of many of the inmates who were in residence on May 15th, 1914, and their consequent transfer to the corresponding register. The criminal lunatics in Perth Prison are 4 more than last year. These two classes constitute the *non-registered* lunatics. Among *registered* lunatics—that is, those in royal, district, and other asylums, in lunatic wards of poorhouses, and in private dwellings—the following changes are noted: (1) There was a total increase of 289, due to an increase of private patients by 31, and an increase of pauper patients by 258. (2) The total increase of 289 arose from an increase of the number in establishments by 347, and by a decrease of the number in private dwellings by 58. (3) The increased number of 347 in establishments arose from an increase of 24 private patients and an increase of 323 pauper patients. Of pauper patients in establishments, the average annual increase during the preceding five years was 202, and the increase during the year 1914 has therefore been much above that figure. Decreases in the number of pauper lunatics chargeable, amounting in all to 84, occurred in fourteen counties and urban areas, while increases, amounting in all to 342, have taken place in twenty-two counties and urban areas.

The total number of patients admitted to establishments during the year 1914 was 3,755 (private 569, pauper 3,186). This is the highest number admitted in Scotland in any single year since the institution of the Lunacy Board, and represents a proportion of 79·1 per 100,000 of the population. The number discharged recovered was: Private 222 (being 39·0 *per cent.* of the admissions), and pauper 1,183 (37·1 *per cent.* of the admissions); total, 1,405 (37·4 *per cent.*). The number discharged unrecovered was: Private 123, pauper 347; total, 470, being respectively private 5·2, pauper 2·6 *per cent.* of the average number resident. These figures show that the admission rate still has an upward tendency, that the recovery rate tends to fall—this being largely due to the more unfavourable nature of the admissions, as indicated in previous reports—and that the rate for unrecovered discharges was lower even than formerly. Simple transfers from one establishment to another are not included in the figures given above; of these there were 410 during the year.

The number of voluntary patients admitted in 1914 was 181, being a marked increase (70) on the average number admitted per year during the ten years 1905–14 (111). They are not certified and not registered as lunatics, and are therefore not included in the figures given above, but a record is made of their names, and other particulars regarding them. The General Board continues to be of the opinion that it is a useful provision of the law which permits persons who desire to place

themselves under care in an asylum to do so in a way which is not attended with troublesome or disagreeable formalities. Simple as the process used to be, a certain amount of time had necessarily to elapse before application could be lodged, and sanction issued ; and, though the delay involved was short, it had serious consequences on more than one occasion. Power has therefore been obtained under the recent Mental Deficiency and Lunacy (Scotland) Act for a person to be received into, and kept in, an asylum for three days on his own written application to the superintendent, provided the sanction of the Board be at once applied for in the usual way on admission, and that no voluntary boarder be retained for any longer period than three days without such sanction.

The number of patients who died in establishments during 1914 was: private 188, and pauper 1345; total 1533. Calculated on the average number resident, the proportion is: for privates 7.9 *per cent.*, for paupers 9.9 *per cent.*; and for both classes together 9.6 *per cent.* During the last three years the death rate has been higher than in previous years, the increased mortality, as compared with earlier periods, being no doubt due to causes similar to those which have already been noted as tending to lower the recovery rate.

An interesting table is given tracing the progressive history of 2539 patients who were admitted for the first time into asylums in 1898, and showing the number of re-admissions which occurred among those of them who were at any time removed from asylum care. At the end of ten years 618 had been re-admitted once, and 22 had been re-admitted twice. The total number of re-admissions during the sixteen years to which the table is extended is equal to 32.4 *per cent.* of the original admissions. During the first two years the cases discharged recovered amounted to 42.1 *per cent.*, discharged unrecovered 10.2 *per cent.*, and died 16 *per cent.*, the removals from all causes thus representing 68.3 *per cent.* of the original number admitted. During the last two years of the table the removals from all causes amounted to only 2.7 *per cent.* of the original admissions, and at the close 440 of the original cases were still resident in asylums.

In addition to those in establishments, the number of registered patients provided for in private dwellings in Scotland on January 1st, 1915, was 2885. Of these the private cases numbered 117 (being an increase of 7 on the previous year), and pauper cases 2768 (a decrease of 65 on the previous year). The total number shows, therefore, a decrease of 58 since January 1st, 1914. Of the pauper patients in private houses about one-third are under the care of relatives, and about two-thirds are boarded with unrelated guardians. The highest number of pauper patients provided for in this way (2909) was reached in the beginning of 1913, and the considerable fall which has taken place in each of the two last years has been sudden and unexpected, and has had the effect of making a number of vacancies in guardians' houses. The decrease has taken place most markedly among the pauper insane boarded with unrelated guardians, the number of which had previously been steadily rising ; and as the reports of the Deputy Commissioners show that the care of the patients continues to be in general quite satisfactory, and is advantageous in various ways, it is probable that the

decline will be merely temporary. The desirability is urged of taking advantage of the present surplus accommodation and skilled guardianship while it exists. Many of the cases which are at present being visited and examined under the Mental Deficiency Act will also, no doubt, be provided for in private dwellings.

Reference is again made in the Blue-book to the want of accommodation for the poorer class of private patients. The Royal Asylums give some assistance in this direction. In the District Asylums the number of private patients has been steadily increasing, and at January 1st, 1915, stood at 335; and in addition to these there is a considerable number who are in the asylums as pauper patients, but who repay the cost of their maintenance to the parishes to which they are nominally chargeable, and who therefore should properly appear as private patients. The number in this last class at May 15th, 1914, was 233. There can be no doubt that the small number of private patients in District Asylums has hitherto been due to the necessity for refusing to receive such cases, or for calling for their removal, when the accommodation is required for parochial cases. It is anticipated, however, that the number of private patients will now tend to increase, as one of the sections of the Mental Deficiency Act provides that private patients having a presumptive settlement in any parish of the district shall not be liable to be removed from the District Asylum upon the sole ground that the beds occupied by them are required for the use of pauper patients.

The usual information regarding the expenditure for lunacy purposes for the last financial year is given in considerable detail. Hitherto, in District Asylums the "Capital" expenditure (for providing land and buildings) has been met by the District Lunacy Boards, while the whole "Maintenance" expenses (for feeding and clothing the patients, supplying medical care, etc.) for patients in District Asylums, as well as the entire cost of supporting pauper patients in Royal Asylums, in lunatic wards of poorhouses, and in private dwellings, has fallen upon the Parish Councils. The capitation grant received annually from Government, and contributions given by the relatives of patients, go to the Parish Councils to assist in meeting the maintenance expenses. Under the Mental Deficiency Act a new allocation of the lunacy expenses comes into force. The District Boards of Control continue to be responsible for the capital expenditure in providing District Asylums, and have also to provide the Certified Institutions required under the new Act. The maintenance expenses for all pauper patients—whether in asylums, lunatic wards of poorhouses, or in private dwellings—as well as the maintenance of the aided defectives, now fall (after deduction of the sums received from Government and other sources) as to one-half upon the District Boards of Control, and as to the other half upon the Parish Councils and School Boards concerned. As the last complete financial year covered by the Blue-book ended on May 15th, 1914, just before the new Act came into force, the financial information in the present report is given in the old form. It shows that the average cost of "providing" District Asylums in Scotland last year was £15 18s. 7d. per patient, and that the average cost of "maintenance" of the patients in these asylums was £27 9s. 3d., making a total cost

for the year of £43 7s. 10d. per patient. For pauper patients in lunatic wards of poorhouses the average expenditure for the year was £22 12s. 11d. per head, and for those in private dwellings £18 13s. 1d. per head. The total expenditure by Parish Councils for the year for the maintenance of their pauper lunatics was £445,967. The Government grant is allocated *pro rata* on the other expenditure of the Parish Councils, and as it is a fixed sum, while the number of patients claiming on it is increasing, the average contribution per head is steadily falling from year to year. Last year it was equal to a contribution of 2s. 10½d. weekly per patient.

Sixty-fourth Report of the Inspectors of Lunatics (Ireland) for the Year ending December 31st, 1914.

The total increase in the number of insane under care in Ireland in 1914 was 171, being practically identical with that of the previous year (170), and 50 less than the average increase for the preceding ten years, which was 221.

In the table on page xi, which states the proportion of insane under care per 100,000 of estimated population, the figures are given for the seven five-year periods from 1880 to 1914, the last quinquennium having been completed by the year under review. From it we learn that the ratio has risen from 268 in the first period to 566 in the last, an increase of 111 *per cent.*, or more than double. But if, as in last year's review, we analyse the respective increments for the several periods, we find that during the last four the ratio of increase has reduced considerably, notably so in the two latest. The percentage increases for each successive quinquennium over the one preceding work out as follows, commencing with the second: 16·4, 17·3, 18·3, 15·2, 8·4, and 4·6. There is, therefore, in the most recent statistics nothing to weaken the inference arrived at when dealing with those of the previous year, *viz.*, that the increase of insanity in Ireland, which has been for so many years persistently progressive, is now at last on the decline.

The number of admissions also is corroborative of this conclusion. These reached their maximum in the quinquennium 1900-1904, when they were 86 per 100,000 of population. In the last quinquennium this ratio has fallen to 81. That of first admissions during the same period has fallen from 68 to 64. Table II, on page 4, enables us to take a more comprehensive view of the downward trend in the number of admissions within recent years. In this table the figures for the three decades from 1881 to 1910 inclusive are given. The average annual number of admissions in the first decade was 2,792; in the second, 3,302; and in the third, 3,720; the high-water mark having been reached in 1908, when the total admissions to district asylums were 3,798. From that on, down to the end of 1914, there has been on the whole, with one slight fluctuation, a steady and continuous fall. So that, if we take the first four years of the present decade, 1911-1914, we find that the average number of admissions has dropped to 3,545, the decrease being more than double in the case of males than in

females. These figures certainly encourage the hope that the increase of insanity in Ireland has reached its acme, and that our expectations of a further reduction in the volume of lunacy will not be falsified in years to come.

The total number of insane in establishments at the close of the year 1914 was 25,180, those in district asylums having increased by 213, in private asylums by 19, and in Dundrum Criminal Asylum by 2, while there was a decrease of 54 in the number of workhouse patients, and of 9 in that of single patients in unlicensed houses. Only 10 *per cent.* of the insane under care are now resident in workhouses; in 1880, 27 *per cent.* were located in these institutions. The transference of insane from workhouse to asylum has been one important factor in the apparent "increase of insanity" in Ireland for the past twenty-five or thirty years. It is a source which is in gradual process of drying up, and one which we hope will eventually altogether disappear.

The recovery-rate, 40·9 *per cent.* on admissions, is the highest recorded during the past twenty-two years—all those that are scheduled in Table VII—while the death-rate, 6·9 *per cent.* on the daily average, was the lowest with two exceptions only (6·8 and 6·7) during the same period. If, however, the ratio *per cent.* of recoveries be calculated on the daily average instead of on the admissions, it shows a continuous decline. For each of the four quinquennia comprised within the years 1893 and 1912 the respective ratios were 9·5, 8·1, 7·4, and 6·8, and for the last two years 6·5. If, therefore, any decrease in insanity, such as we hope for, is in store for the country, it will probably be dependent on a reduction in the number of admissions, to which there is a decided tendency of late, rather than on any increase in the death- or recovery-rates.

The recovery-rates in the various district asylums vary, as usual, to an amazing extent from a minimum of 22·5 in Sligo to a maximum of 59·7 in Monaghan, a phenomenon to which we feel inclined to apply the once famous Dundreary catchword, and must be content to let it remain as one of those inscrutable mysteries which are occasionally encountered. We may, however, hazard the opinion that the problem is one into the solution of which the personal equation might be expected largely to enter.

The death-rate also varies considerably, from a minimum of 4·1 *per cent.* (on daily average) in Kilkenny to a maximum of 8·6 *per cent.* in Londonderry. Although Kilkenny has the lowest death-rate generally, it shows the highest mortality from phthisis, *viz.*, 42·8 *per cent.* of the total deaths, while Carlow has only 3·1 *per cent.* to record and Armagh 4·5. The enormous difference in the phthisical death-rate in different asylums has been made the subject of comment at some length in previous reviews, and it is unnecessary to deal with the subject at any greater length in the present one. As regards the phthisical death-rate in general, we welcome the addition in the table on p. xxii giving the five-year averages for a series of years commencing with the year 1890, which also includes the average death-rate from general paralysis and epilepsy during the same period. From it we learn that the relative mortality from phthisis during the last five quinquennia has fallen from 27·2 *per cent.* in the first to 21·5 in the last, a decrease of over 20 *per*

cent. The mortality from epilepsy has fallen from 5·7 to 4·0 *per cent.*, while that from general paralysis has risen from 2·5 to 4·4 *per cent.* This last may, however, be regarded as almost stationary, as for the last four quinquennia the ratios are 4·0, 3·6, 4·2, and 4·4. This brings us to the subject which receives special attention in this report—venereal disease as a cause of insanity.

In Table XII, App. B, it is recorded that in 68 cases admitted in 1914 a history of antecedent syphilis was ascertained, a percentage of 1·93 of the total admissions, and in 55 of these it was assigned as a principal cause, or 1·46 *per cent.* This is a very small proportion, and is under the average, 1·76, for the last five years. The Inspectors, however, consider that these figures may almost certainly be taken as an under-estimate, and that a truer estimate of the prevalence of syphilis amongst the asylum population will be arrived at if the incidence of general paralysis of the insane be adopted as a criterion. The writers, after mentioning the fact that the average percentage death-rate from this disease during the past five years was 4·4, add, "It is evident that the prevalence of the disease is gradually increasing, the death-rate having doubled since 1890." We can hardly accept this as a strictly accurate view, as the "doubling" mainly occurred during the second of five quinquennia, and, as shown in the preceding paragraph, the relative mortality from general paralysis has been practically stationary for the past twenty years.

This low mortality from general paralysis is in marked contrast to what prevails in England and Scotland, where the deaths from this disease amongst asylum patients average from 15 to 20 *per cent.* of the total mortality. From the facts, as revealed by statistics, the Inspectors draw the perfectly warrantable conclusion that "venereal disease plays a comparatively trifling part in the causation of mental abnormality in this country as a whole."

Many years ago, in a paper read at the annual meeting of the Association in Dublin in 1894, it was shown that the apparently higher proportion of insane in Ireland, as compared with the sister countries, was altogether due to the much lower death-rate, and, consequently, increased amount of accumulation in the former; and, further, that the higher death-rate in England and Scotland was mainly, if not wholly, dependent on the far higher mortality in those countries from general paralysis. As is well known, this disease prevails to a far greater extent in urban than in rural populations; and, Ireland being principally populated by rural communities, and possessing only comparatively few large towns, cases of general paralysis are almost limited in their occurrence to these latter, and are only rarely to be found in the majority of the country asylums; so that while Belfast and Dublin have a relative percentage mortality of 17·10 and 11·26 respectively, in twelve of the district asylums the ratio is under 1 *per cent.*, and in four others under 2 *per cent.* In Limerick asylum not a single death was due to this cause. There are, therefore, reasonable grounds for the more general inference advanced by the Inspectors that "the greater part of Ireland is practically free from venereal disease."

The number of cases admitted in 1914 in which mental stress was assigned as a factor was in much the same proportion as for the two

years immediately preceding, the ratios for the three years being 16·70, 16·83, and 16·72. From this the Inspectors conclude that there is no evidence that the war has so far directly produced any increase in insanity. We will be in a better position, however, to judge of this next year, when the figures for the current year will have been compiled, as only five months of the war had elapsed at the end of the year 1914.

On the other hand, the Inspectors regard as an *indirect* effect of the war the increase in the number of cases in which alcohol was assigned as the principal cause. The percentage of such cases in 1913 was 8·62, while in 1914 it was 11·01, showing a rise of nearly 2½ *per cent.* This surmise is probably correct. The increase—this is not stated in the report—was confined to the male admissions, there being a reduction in the number of female cases due to this cause.

Pathological work in Irish asylums is unfortunately heavily handicapped, owing to circumstances peculiar to the country, which have been adverted to in previous reviews, and it is to be feared that there is not much likelihood of any improvement in this respect, as the prejudices of the Irish population, especially against *post-mortem* examinations, seem just as pronounced as ever they were. The number of autopsies held last year was only 177, a percentage of exactly 12 on the number of deaths, and compare very unfavourably with England and Scotland, where not infrequently autopsies are made in over 90 *per cent.* of the cases of deaths in asylums. The number is also lower by 41 than that of the year preceding, which does not augur well for the future. In five asylums not a single *post-mortem* was made, in two others only 1, and in two only 2 were held—not a very satisfactory record.

It is regrettable that in five asylums no classes for instruction of the attendants are held. In one no attendant holds the certificate of the Medico-Psychological Association.

The reports on the condition of the insane in a large number of work-houses are depressing reading. The sanitary (?) arrangements in many are a disgrace to the twentieth century, and a few sentences culled from these reports will indicate what it is to be feared is a state of things which, with a few exceptions, may be said to prevail generally: "The sanitary accommodation consists of buckets in the wards, and latrines or privies out of doors. The former have no water laid on for flushing, and both the floor and the yard outside were in a filthy state." This is the condition in quite a number of these institutions. The patients "occupy a gloomy, poorly-kept ward both by day and night." "The sheets were found infested with vermin." "They sleep on old straw ticks on the floor, bedsteads not being provided." "Antiquated privies, which were in a filthy condition." "The dinner on five days in the week consists merely of bread and potatoes with a sort of thick gruel, which latter, it was stated, is mostly given to the pigs, as few of the inmates will touch it." Patients "found in a most unsatisfactory condition, being dirty, untidy, and badly kept; some had no socks." "The beds and bedding were found in a neglected and unsatisfactory state, with soiled and wet sheets and fleas plentiful." "Beds of the old wooden box type, with straw merely put into them, not even in ticks." "No day-rooms." "No bath-rooms." "One of the male wards is

shared by inmates suffering from scabies," which is characterised as "an extraordinary arrangement," a rather mild criticism ; "execrable" would seem to us a more appropriate adjective. "Total absence of all proper bathing arrangements," so that "the inmates never get a complete bath except on first arrival." We rub our eyes and ask : "Can such things be?" in this age of progress. We ask further, what are the masters and matrons in these institutions doing ? Do the medical officers of workhouses shut their eyes when passing through the "idiot wards," if, indeed, they are visited at all ? And, chiefly, do the guardians of the poor really persuade themselves that they are conscientiously discharging their duties and responsibilities in tolerating, if not approving of, such treatment of a very helpless class ? Lastly, these reports presumably come before the Local Government Board. Are they merely consigned to the waste-paper basket ? This state of things has existed in some, not all, workhouses for an indefinite number of years. These institutions are regularly visited and reported on both by Poor-law and Lunacy Inspectors. Why is not pressure of some kind brought to bear on the local bodies by the central controlling body to induce, and, if necessary, compel them to abolish such an anomalous condition of things, which, to say the least of it, is inhumane, and which in any civilised country is nothing but a disgrace to those who are responsible for it ? We need only repeat what has often been urged in previous reviews in the Journal, that workhouses are the last places to which the insane should be consigned, and the sooner every patient is removed from such dreary and unsavoury surroundings the better it will be for themselves and for the credit of humanity.

The Individual Delinquent. By WILLIAM HEALY, A.B., M.D. Illustrated. Pp. 830. 8vo. Price 21s. net. London : Heinemann, 1915.

The work of Dr. Healy, Director of the Psychopathic Institute attached to the Chicago Juvenile Court, is widely known, and this substantial volume raises high expectations. It may be said at once that these expectations are amply fulfilled. Dr. Healy has here probably produced the best book on criminals yet written in English. It is certainly the most comprehensive account of actual work achieved, and the most satisfactory statement of results. This end is not attained by any attempt to compete with the work of either Italian or German criminologists. Dr. Healy represents the American spirit at its best, and that spirit is simply a bolder and more thorough form of what we usually consider the English spirit, the tendency, that is to say, to put practice before science, and to prefer facts to theories. The book is aimed throughout at practice, and intended for the guidance of judges, lawyers, and institutional authorities, of physicians, psychologists, religious leaders, teachers, and parents. The author admits that he began the study of criminality in the neurological clinic, and his first teachers were Lombroso, Ferri, and Talbot. But, while still fully recognising the great part played by Lombroso and the Italian posi-

tive school, he quickly found "the facts too much for the theories." The intricacies of causation appeared manifold. He abandoned not only theories but classifications, though practically he has not here been able to avoid classification. Throughout he insists on the individual study, and the individual treatment of the criminal. This doctrine of individualisation is by no means new, but Dr. Healy has been able to carry it out more thoroughly and extensively than previous workers. No doubt he has not always escaped theory so completely as he desires. The actual result of avoiding discussion of theories is an unconscious acceptance of theories. Dr. Healy has "not the slightest inclination to place delinquents as such in the list of abnormal individuals." But the theory here suggested that criminality is normal may lead to deductions which Dr. Healy is certainly not likely to accept. He is also anxious, with excellent therapeutic intentions, not to admit the existence of "born criminals," and quotes with approval the statement that criminals are born and made just as policemen are born and made. But this method of regarding social activities as co-ordinate with anti-social activities again plunges us into dubious theories and classifications. Dr. Healy thinks that we must reject utterly the conception of the "born criminal" in favour of the "born defective who is secondarily criminal." But it is by no means clear that those who accept the first and more concise term would feel themselves separated by a great gulf from those who prefer the other. Such minor points, however, need not be pressed, for Dr. Healy seeks to avoid theories and classifications, and in so far as he succeeds it is usually possible to accompany him with hearty agreement and warm appreciation.

The volume is based on the study of youthful recidivists (the term "delinquent" being used in no narrow or special sense), 1,000 in number, though only 823 have been used for comparative investigation of causative factors. They came from the Juvenile Court and other sources, and nearly all were seen with other psychologists who co-operated in the investigation. The average age was between fifteen and sixteen, some younger children and some adults being included. They were brought from many sources, and there were numerous troublesome "problem cases." Nearly all were seen in company with relatives, and the information thus obtained was often full and precise. The author is well situated for the disposal of his cases, and was thus greatly aided in their successful treatment. He appears to be able to look down with lofty contempt on the ordinary legal criteria of responsibility. They are, as he well points out, antiquated, metaphysical, intricate, and uncertain. Fortunately, he adds, when we are dealing with criminals practically we find that the old idea of responsibility is unnecessary, and he appears to have been able to dispense with it. "We should not be stampeded in the least," he says, "by what we are asked for on the witness stand," for the law cherishes "its own artificial standard," which is not based on facts, or on a knowledge of the interactive causative factors of delinquency in the individual offender. "Many a psychiatrist has met his Waterloo in attempting a definition merely of insanity."

Three chapters, extending to nearly a hundred pages, are devoted to "Working Methods." These, it may be scarcely necessary to observe

in the case of so distinguished a worker, are admirable for their comprehensiveness, their practicality, and the combination of the best modern scientific conceptions with avoidance of unnecessary detail and tedious over-refinement. Much flexibility is admitted, a special method of approach to every case, for Dr. Healy, it may be repeated, is inspired throughout by the idea that "the dynamic centre of the whole problem of delinquency and crime will ever be the individual offender." The purely objective method of psychological or medical approach is useless. The investigator's attitude must be shrewd but sympathetic, the attitude of the family physician, with "no special nose for the pathological," but willing to survey the whole of the facts. The author places considerable, but discriminating, reliance on the Binet test, in combination, however, with many other tests. On the basis of these tests, the subjects dealt with were classified in regard to mentality in thirteen layers, of which the four lowest are denominated subnormal, moron, imbecile, psychoses; above the subnormal are three main divisions, variously subdivided: the supernormal, the ordinary or fair, and the poor in ability. The way in which psycho-analysis is included among the working methods is characteristic. Dr. Healy takes no interest in any theories, Freudian or other. He is only concerned with psycho-analysis because of "the commonsense explanations and therapeutic results it has given us"; these have been in some cases "nothing short of brilliant." There has been no attempt to follow a strictly Freudian technique, and no acceptance of the doctrine of exclusively sexual origin, but it has been found that the mental and environmental experiences of early life are very important for understanding later behaviour, and that hidden mental conflicts have arranged the destinies of many a chronic offender. The chapter on "Mental Conflicts and Repressions" is one of the most original and valuable in the book.

A chapter is devoted to statistics of the cases. The method of accumulating isolated facts is rejected. The factors in the history of each case have been enumerated in rough chronological order, as they apparently produced the offender's career, and then estimated as far as possible on their relative importance. It is on this basis that the statistics are built up, and no characteristics are included but those that are believed to have had some causative significance. Thus the physical over-development of girl offenders, frequently found in these subjects, is only taken into account when it appeared to be a causal antecedent in the particular case. Again, as regards poverty, which is found to be rare, in accordance with the general high level of well-being in Chicago, even when it exists it is not to be regarded as a factor if other members of the same poor family live honestly. Defective heredity and defective early developmental conditions are also, on the other hand, regarded as only minor factors, the major factors being the qualities of mind and body which they leave in their train. It was found that 67.4 of the whole number of cases were without doubt mentally sound, and 10 *per cent.* were without doubt feeble-minded, the figure being below the mark, as some of the others will fail to develop with age. The criminal tendency itself is regarded as not inheritable, only its basis, and it was found that in 61 *per cent.* of cases there were distinct defects in the family inheritance. Among the parents and

grandparents there were 82 cases of insanity, 12 of suicide, and 79 of criminality.

In the chapter on "Treatment," Dr. Healy shows no wish to eliminate "punishment as such." With full appreciation of the offender's family background, and with due attempt at all needed therapy, he states, there may well go hand in hand the deliberate idea of building up inhibitory powers by maintaining the conception of possible future penalty. But, he adds, the punishment must not injure the offender, as there are many possibilities of breeding evil by punishment. These dangers begin at the moment of arrest, and are increased by the folly of fixed short-term punishments without constructive treatment. An extension of the excellent methods of the American Juvenile Courts up to the age of twenty or twenty-one is advocated. Dr. Healy is not very enthusiastic about institutions of reformatory type, and here, as ever, emphasises the need for individualisation of cases. Good results can only be obtained by understanding cases, and by following them up. In a large proportion of the cases dealt with by the sagacious methods here set forth the results have evidently been highly satisfactory.

It is not easy in a short review to give an adequate idea of the variegated interest of Dr. Healy's work, and the great variety of abnormal mental states which are described and illustrated by appropriate cases. Enough has perhaps been said to indicate the value of this splendid record of a finely equipped and fortunately situated pioneer in a difficult and important field.

HAVELOCK ELLIS.

The New Psychiatry. By W. H. B. STODDART, M.D., F.R.C.P.
London: Baillière, Tindall, & Cox, 1915. Pp. 67, 8vo.

Dr. Stoddart's Morison Lectures furnish interesting evidence of the extent to which Freudianism—for the "New Psychiatry" has no existence outside the Freudian sphere—is spreading its influence among us. It is perhaps unfortunate that this little book could not have appeared ten years earlier, for the literature of psycho-analysis is now so extensive, even in English, that a new attempt to cover the old ground is likely to be viewed with more critical austerity than would formerly have been the case. There is no doubt still ample room either for a full and explanatory discussion of the various psycho-analytic conceptions, or for an attempt to transform and adapt those conceptions to our accepted traditions. It cannot be said, however, that Dr. Stoddart has attempted either of these tasks, and his suggestion that Hughlings Jackson was a fore-runner of psycho-analysis scarcely seems convincing. As an exposition, his little book is bald and doctrinal, so concise that it is not always easily able to follow the logic of the Freudian mechanisms described, and so uncompromising that it seems unlikely to conciliate opponents, or win over adherents who are not already converted. When we read Freud's own writings we are so impressed by the magnetism of his genius and the charm of his style, we are so carried away by the privilege of this high adventurer in ever new and uncharted seas, we are so stimulated by the salt spray in our faces, that we overlook the fact that we are not so sure as would be desirable concerning our precise latitude and

longitude. But in the calm and sedate atmosphere of Dr. Stoddart's lectures we realise more keenly the uses of sextant and chronometer, we become more critical. It is probable that many readers will prove rebellious to such brief and rigidly dogmatic statements as "The incest-complex exists in the unconscious of every individual, normal or abnormal"; or "Paranoia is a psychosis erected on the invariable basis of repressed homosexuality." Dr. Stoddart has scarcely guarded adequately against that mood of irreverence which still overcomes so many in the presence of psycho-analysis, especially in its more dogmatically narrow and sectarian aspects. The smoker may be mildly shocked to hear that "smoking is frequently a sexual sublimation"; but will speedily be reassured by the statement that "sublimation always means diversion to useful, social aims." It is not, indeed, made quite clear why the puffing of smoke represents a more useful social aim than the procreation of children, and the "race suicide" fanatic may here take offence. Others may be surprised to hear that all our knowledge of sexual development is due to Freud, and that even the old term "erogenous zone" must be ascribed to him.

Regarded as an exposition, Dr. Stoddart's book will probably be found most useful by those who are already persuaded, and therefore not disposed to be critical. They will find here a reasonably straightforward and faithful summary of the main Freudian ideas and practices, together with some reference to those of Jung, the more obscure and unpractical parts of the doctrine, as well as its discrepancies and modifications in various hands, being judiciously passed over. (It is never made clear that psycho-analysts are now split up into many groups, and that even Jung is no longer within the Freudian fold.) Such readers will find in Dr. Stoddart a sagacious guide in taking up for themselves the practice of psycho-analysis. In this respect the book might have been still more useful if it had been furnished with an appendix on the copious literature of the subject.

Many readers, however, would probably sacrifice the expositional portions of these lectures altogether in return for a more detailed account of Dr. Stoddart's own experiences and results with psycho-analysis. Within the narrow limits of these lectures he is only able to summarise his own adventures in the unconscious as baldly as he expounds Freud. He agrees that hysteria and neurasthenia, the field in which Freud himself first applied it, is the most favourable region for psycho-analysis. In maniacal depressive insanity it should only be attempted between the attacks, and should not be pushed far. The analysis of dementia præcox should not be attempted by the beginner; the katatonic form is the most favourable for psycho-analytic treatment; the paranoid form should be severely left alone, as there is some risk that both experiment and experimenter may be brought to an untimely end. The same unfortunate sequel might, obviously, also occur in dealing with paranoiacs. Nor is Dr. Stoddart in favour of psycho-analysis being attempted in institutions by busy medical officers. At the same time he is enthusiastic as to the results under suitable conditions, and considers that psycho-analysis has a bearing on *70 per cent.* of asylum patients. Dr. Stoddart emphasises the evil results of that repression of the instincts which civilisation involves, and certainly with

justice, but it may be added that on this point Kraepelin, who is opposed to Freud, is here at one with him. There can be no reasonable doubt also that mental and emotional conflicts, in which sexual factors must often be blended, frequently prove disastrous. No one has demonstrated this so thoroughly as Freud; but it has been known obscurely from of old; the Catholic Church has acted on that knowledge for many centuries, and to-day Dr. Healy, for instance, finds it possible to obtain brilliant results in solving the repressed conflicts to which Freud has called attention, while yet remaining indifferent to Freudian mechanisms and Freudian theories. To many readers to whom the subject is new, Dr. Stoddart's statement of the orthodox Freudian formulas of the Unconscious may open the way to fresh lines of thought and treatment, even though to other readers it may suggest the reflexion that the Unconscious is a vast rubbish-heap in which, by diligent search, you may find almost anything.

HAVELOCK ELLIS.

An Introduction to General Psychology. By ROBERT MORRIS OGDEN.
New York, 1914. Pp. 270 + xviii. 5s. net.

This book is designed to serve as an elementary text-book for beginners, and particularly for those wishing to acquire some general knowledge of psychology with a view to passing on to further work in philosophy, education, sociology, and biology. It possesses two distinctive features. The first is the abbreviation of the portion devoted to sensation and physiological psychology, and the omission of any study of the nervous system, with the object of devoting a proportionately increased space to "mind as a whole, and to the important topics of personality and character." The second arises from the author's conviction that "it is no longer possible to teach the old psychology, in which sensation and association are the chief foundations," and that "the time has come when we must modify some of our psychological principles and conceptions, with reference to the more recent investigations of the thought-processes." In pursuance of this aim stress is laid upon purposive direction as a fundamental factor in mental processes, and the modern conception of imageless contents is introduced. The influence of Külpe and the Würzburg school is shown here very markedly.

The author has endeavoured to compress his work into the limits of a one-term course, and although he has thereby managed to concentrate in a small volume a general survey of a very wide field, this procedure has inevitably brought with it many disadvantages. The brevity of the treatment frequently makes adequate appreciation of the subject very difficult, and this difficulty is further increased by the conspicuous lack of examples and illustrations. No doubt the deficiency can be supplied to a large extent by the co-operation of the teacher, and the author explicitly states that this is his intention.

An interesting chapter on insanity is included, and some space is also devoted to the phenomena of hypnosis, double personality, and other abnormal mental conditions.

BERNARD HART.

An Introduction to Experimental Psychology. By C. W. VALENTINE.
London: University Tutorial Press. Pp. 190 + vii.

This little book is chiefly concerned with the application of experimental psychology to educational problems, and to the work of the teacher in the school. Hence it is of only indirect value to psychiatrists. The clinician will, however, find in it many hints which can be turned to account in the examination of his patients, and it will enable him to devise tests and methods of great assistance in his investigations.

The book is divided into two parts. The first contains detailed instructions for carrying out the various experiments, while the second deals with their theoretical and practical significance. All the experiments are capable of being carried out without apparatus, or, at most, with apparatus that can be constructed in a few moments with pen and paper.

BERNARD HART.

Occultism—A Review.

Where do we stand to-day in our attitude towards occult matters—no better generic term being available? What knowledge have we of the existence of communications between ourselves and discarnate beings? What actual knowledge—apart from faith—have we of the continuity of human existence? What knowledge have we of the psychic powers inherent in ourselves? Since the middle of the nineteenth century, a large and increasing amount of investigatory work has been done towards the elucidation of these problems, and it is at all events a hopeful sign of our mental progress, that the proportion of those who regard all serious inquiry in this direction as utterly futile and indescribably absurd, is a daily decreasing one, and the storm of peevish derision that was aroused by the publication in the *Quarterly Journal of Science* in the early seventies of the results achieved by Sir William Crookes, looks to us remarkably ignorant in the light of the calm approbation with which the extraordinary results attained recently by certain savants, notably Professor Ochorowicz, have been generally received. There are so many people who are genuinely anxious to know what is really the present stage to which knowledge has advanced, that it seems a short survey of the conclusions at which investigators have arrived would not be amiss, especially as we in this country are a little behind in these studies, and just as the curative possibilities of hypnotism are only now beginning to be used practically here, while in France they are almost a commonplace, so in this country the majority of people are either sceptics or convinced spiritualists. The former are merely ignorant, and of their ignorance nothing further can be said, except that it is necessarily ignorance of a dense form, in view of the ample sources for its alleviation at their disposal; but for the spiritualists there is much to be said, seeing how most of the phenomena of occultism have every appearance of the intervention of outside intelligences to anyone who does not know of the strange developments of which subconsciousness is capable under certain conditions, commencing with hypnotism.

Through all the stages of the world's history there have been people

who have been blessed or cursed—according to the popular view obtaining at the time—with supernatural powers, using the expression to mean something more than our every-day conception of what is natural. The experiences of the saints are redolent with psychic faculties, and they were then mostly ascribed to Divine intervention. Later, similar experiences were regarded as satanic, and the unfortunate subjects were correspondingly punished: nowadays, they are considered to be either “mediums,” *i.e.*, convenient vehicles used by discarnate beings who desire to communicate (mostly with beneficent intent) with us, or “subjects” for the profitable investigation of scientific men. (Among the sceptics they are, of course, known as “frauds.”) And perhaps all three designations are true of different individuals always, or of the same individual at different times.

There can be no doubt in any reasonable, well-read man's mind that strange things do undoubtedly happen, either to certain people, or in their presence, and these strange things are divided into two broad classes: those which are *subjective*, or manifest themselves to the subject's own consciousness, and leave no physical trace of having taken, or of taking place, and those which are *objective*, or are accompanied by some physical disturbance, or leave some physical trace. In the former category may be included visions (clairvoyance), sounds (clairaudience), feelings of different kinds, trance, premonitions, telepathy, and psychometry; in the latter—apparitions, sounds perceivable to others, movement of objects without contact, and all the host of happenings which are known as physical phenomena. Obviously, the latter are susceptible of proof, and the former may be so, but with greater difficulty. Both categories have been proved to exist, and the only thing that remains to be ascertained is whence they arise. Now in England, speaking very broadly, they are generally taken to be sufficient proof of the intervention of discarnate beings—hence the belief of spiritualists, and to anyone who comes fresh to the subject that would be the logical and only possible explanation of quite a large majority of instances. But, commencing with the study of hypnotism, we find that in certain conditions, such as hypnosis, a deeper stratum of the human mind seems to be disclosed, in which it acquires powers far beyond those of its normal condition: it can (only with certain individuals and under certain conditions) report what is passing at a distance, read writing which is sealed to the eye, measure time, assume a totally different character, and, most important of all, obey commands made, even to the extent of obeying them after awaking. So strong is the obedience that, by this means, the beating of the heart can be retarded or accelerated, and a finger laid on the arm of a hypnotised subject, and stated to be a red-hot iron, will raise a blister.

This deeper stratum of the mind is called the subconscious mind, and the important point, upon which all serious modern inquiry is based, is that it can be reached by other means than by hypnotism. It would appear that we all have this deeper layer of mind, but that we differ in the extent to which our normal mind can communicate with it, or to which it can surge up in our normal consciousness. In some the communication is only established during trance, which can be brought about by many causes in addition to the hypnotist's command of

"sleep!" His is merely a very strong suggestion; and auto-suggestion, the suggestion of circumstances, or any other form of suggestion may produce the same effect, and, to those who are not aware of the efficacy of these more hidden forms of suggestion, their result appears to be clearly the work of unseen entities, and the communication given appears naturally to come from them. The proof that in most cases it is not so is difficult to state in a few words. It is a cumulative proof, and starts from the curious likeness between the messages thus received and those given by a hypnotised subject, the general triviality of the subject matter, and the absence of any knowledge that is not shared (known or unknown) by any individual present.

If, however, there are communications from the discarnate beyond the rare instances of appearances of the dying and dead and other unsought phenomena, it is evident that, as they are not received through the normal channels of our every-day senses, they must come through some of these super-normal states of consciousness, *i.e.*, through some of the conditions of so-called mediumship, and these conditions exist when the subconsciousness has been opened up either intentionally or automatically. The phenomena which then manifest themselves may thus have their origin merely in the subconsciousness itself, or might be due to some other intelligence acting upon the subconsciousness. In order to ascertain the real source of any such phenomenon each individual instance must be specially studied by itself, and it is extremely difficult to preclude the possibility of a purely subconscious origin. This is what has to be done, however. It is no longer interesting to obtain phenomena, except perhaps once or twice, in order to have an opportunity of witnessing the strange things about which one reads; as one can now hardly doubt that they do happen, there is no particular satisfaction in making them happen again, or in proving that this or that particular medium is a genuine one. The truly interesting work is to endeavour to obtain instances which cannot possibly be accounted for by the action of the subconscious mind. A disheartening point about this is the logical assumption that, inasmuch as phenomena which a little time ago would have been, and actually were, taken as absolute proof of discarnate intervention, have now been proved to be well within the possibilities of the subconscious mind alone, similarly, anything which we may now obtain in the nature of proof may a little later be shown to be still within the subconscious domain. Well attested and strictly supervised cases of the movement of object without contact were, for instance, formerly regarded as conclusive evidence that discarnate beings were at work, but Dr. Ochorowicz has now found, photographed, and proved to the satisfaction of a committee of naturalists, the existence of psychic rays, which he calls "rigid rays," between the hands of a young medium, Mlle. Tomczyk, which have the power of moving objects.

The two popular points of view are admirably illustrated by the fact that an Ecclesiastical Commission was recently appointed to inquire into the conduct of a certain Anglican clergyman, whose sermons on spiritualism attracted attention. Here we have the convinced spiritualist, who obviously could not preach general spiritualism if he realised even a part of the result of modern research, and the anti-occultist, who must

either be ignorant not only of such results, but also of the very existence of occult phenomena, or else realise their existence, and ascribe them to a superstitious source.

Those who are drawn to further investigation should take no practical steps until they have read the following works in the order stated: *The Law of Psychic Phenomena* (Hudson), *The Survival of Human Personality* (Myers), and *Metaphysical Phenomena* (Maxwell). *Varieties of Religious Experience* (James) can be added with advantage.

L. HALLIDAY.

Part III.—Epitome of Current Literature.

1. Physiological Psychology.

The Integrative Functions of the Nervous System applied to some Reactions in Human Behaviour and their attending Psychic Functions. (Transactions of the American Medico-Psychological Association, 1914.)
Edward J. Kempf, M.D.

The object of this paper is to harmonise certain psychic functions with physiological and integrative functions of the nervous system.

When emotions are intensely generated they always cause more or less derangement of the habitually used modes of psychomotor expression. When nervous energy caused by the emotional state cannot find its characteristic outlet through the voluntary motor system, it overflows into the involuntary muscular system. The following example is given: "A physician was fishing one morning just after eating his breakfast. He hooked a goodly sized bass. After a pretty fight he succeeded in drawing it up to the side of the boat, but as he tried to land the fish it unfortunately escaped. A minute or two later he was rather surprised by the unexpected regurgitation of his breakfast."

Whatever view is held regarding the physiological mechanics of emotion the following factors are constantly present:

(1) The emotional state is aroused by some kind of cerebral stimulus.
(2) It is a type of reflex action. (3) It involves essentially the cerebral adjustment towards essential changes in the viscera, glands, and vasomotor system. Viewing emotion in the light of a reflex there are two great groups of effector (Sherrington) cells. Those connected respectively with the voluntary and the involuntary muscular systems—for example, in anger, if the discharge is inhibited from the voluntary system the viscera and vasomotor systems receive the surplus of the discharge, and may cause disturbances of a severe and lasting nature.

The work of the analyst must be devoted to readjusting the ideas which cause the repression of the affect from the voluntary system. The paper then goes on to show that the symptoms of the psychoneurosis are due to repressed complexes, and can be explained in the psychic field in a manner similar to the work of Sherrington (*Integrative Action*

of the Nervous System) in the physiological field. A case of hysterical lameness in which analysis effected a cure is given as an example.

He concludes by saying: The present day opposition of many students of behaviour and mental diseases to a psychogenetic interpretation and formulation of the causes of abnormal behaviour is not excused by the failure of the older organic or metabolic conceptions. The new methods are in perfect harmony with critical studies of the functions of the nervous system and the mind. Merely descriptive studies of behaviour can never be sufficient or helpful for therapy or understanding of processes. We need dynamic conceptions, formulations, and methods which yield a practical psychological and physiological analysis and applicability.

R. H. STEEN.

A Criticism of Psychoanalysis. (Transactions of the American Medico-Psychological Association, 1914.) Charles W. Burr, M.D., and F. X. Dercum, M.D., etc.

Dr. Burr confesses that his attitude, after study and investigation, is not sympathetic towards Freudian psychoanalysis. He gives a brief *résumé* of Freud's teaching, and quotes cases from Brill and other writers. Dr. Burr takes exception to the theory of "complexes and conflicts, and a censor which controls them," and "cannot understand how a mental thing of which we are by definition unconscious can influence conscious life." Dr. Burr finds his greatest objection to psychoanalytic treatment in the stress laid on sexual matters. He points out how the danger is greatly increased by the fact that the treatment is no longer to be confined to physicians, "and only recently a German has published a book the avowed purpose of which is to instruct teachers and clergymen how to practise the art. Need one ask if such a thing is wise? We have seen in recent years the injury that has come from amateur treatment of mental diseases by religious systems."

He concludes as follows: "I remember an old and distinguished professor of medicine in Germany who, when some years ago I told him I had aspirations to become a neurologist and alienist, looked at me kindly and a little quizzically, and then said, 'Be careful, my young friend; alienists are all a little queer.' The old gentleman had some justification then, but what would he think now could he be told what we are often told, that psychoanalysis is one of the greatest contributions to therapeutic art?"

In the discussion which followed the reading of this paper Dr. Dercum, wholly agreeing with Dr. Burr, presented a very able case against the theories of Freud and his disciples. His contribution, which is difficult to summarise adequately, is well worth reading in its entirety. He pointed out how much more important in the ætiology of the psychoses are intrinsic causes as compared with psychic traumata. He said "the interpretation of the amnesias, of the dreams, of the association test, depends upon the imagination, the auto-suggestion of the analyst, upon the figments and fancies of his own brain."

He closed by saying "that it should be a matter of keen humiliation and chagrin that at an epoch when psychiatry is beginning to unfold a practically limitless field for actual scientific research, men should be

found willing to devote themselves to a cult, to an ism, which, like a salted mine, returns to the investigator that which he himself puts into it."

Drs. W. A. White and Hoch spoke briefly and temperately on the other side. They said that they saw certain facts which required interpretation. If there were better interpretations available than those they offered they would willingly accept them.

R. H. STEEN.

On the Formation of the Erotic Complex in the Emotion of Love [Sur la formation du complexus érotique dans le sentiment amoureux]. (Revue Philosophique, February, 1915.) Kostyleff.

The author discusses this question in connection with the studies of Freud and his pupils regarding the psycho-sexual attitude of four celebrated men as revealed in their love affairs and in their creative work—viz., Leonardo da Vinci, Lenau the pessimist poet, Giovanni Sebantini the painter, and Wagner. In each of these artists the psychoanalysts have discovered to their own satisfaction that the dominant emotional influence throughout their lives has been the famous "incest complex." Kostyleff fully accepts the view that in these cases and, indeed, in general, impressions dating from early childhood and persisting subconsciously contribute to the formation of an erotic complex in relation with the sexual instinct, but he disputes the further assumption of the Freudians that this complex necessarily or ordinarily involves an individual image, or even a group of individual traits. He maintains, on the contrary, that a careful consideration of the facts shows that, though the maternal caresses may awaken the first organic reflex, there is not normally at that stage any true psychic accompaniment, and that when in later development there is a psychic association with the reflex, the link may be through some simple and more or less accidental element without any persistence of the image of the mother. In the case of Lenau, for instance, who was slavishly adored by his mother, the various women with whom he had amorous relations had no physical or mental resemblance to her or to one another, but they were all women who worshipped him and were dominated by him; this emotional attitude was the common trait which constituted the association between the first erotic reflex and the fully developed sentiment of adult love. Similarly with Stendhal: his autobiography gives unmistakable evidence of the awakening of definite sexual feeling in relation to his mother, but in his numerous love affairs there is no trace of a feminine ideal formed on her type; his several mistresses were quite unlike one another in all respects, except in their power to arouse in him the feeling of intense admiration which had accompanied his early and vivid impressions of his mother. The author's conclusion is, therefore, that the erotic complex need not be, and perhaps is not, ordinarily attached to an ideal image of an individual of either sex: the "incest complex" has not accordingly the importance and extension that the doctrine of Freud would give it.

W. C. SULLIVAN.

2. Psychology and Psychopathology.

Infantile Sexuality and the Neuroses. (*Revue de Psychothérapie*, February, 1915.) Dr. J. Laumonier.

Freud and his school assign to sexuality the most important and almost exclusive rôle in the production of the neuroses and psycho-neuroses. To infantile sexuality he attributes the origin of hysteria and obsessions. In his early period (1894-6) he divided the psycho-neuroses due to sexuality into two groups: (1) Neurasthenia and the neurosis of anxiety, due to existing sexual troubles, and (2) hysteria and the obsessions due to sexual traumata of early childhood, *i.e.*, prior to the age of eight years. The later Freud (1905) admits that he has given too high a value to these infantile impressions, and that many of the histories told by his hysterical patients are imaginary. He now blames the "sexual constitution" of the infant. Here the word "libido" comes on the scene. Freud's definition of this term is that it corresponds in the sexual sphere with the word "hunger" in that of nutrition. It does not necessarily involve the idea of genital satisfaction, and may exist without the subject's knowledge of its import. The sexuality of the child consists in many fragmentary instincts, each evoked by the excitation of some special zone (the "erogenous zones"). In these Freud includes not only the genital zone, but the anus, belly, chest, neck, ear, thumb, and foot! Certain external causes may bring into prominence one or more of these extra-genital zones, to the detriment of the proper subordination of all to the genital zone in the normal sexuality. Thus, in Freud's view, the child has in him the germs of all the forms of perversion met with in the adult, and in spite of his "angel mien" is really a "polymorph-pervert"!

Normally at puberty the genital zone takes predominance, and the auto-erotic child transfers his sexual objective to one of the opposite sex. But there are three other courses open to him:

(1) The infantile tendencies may persist, and be recognised by the subject, who then is a sexual invert or pervert.

(2) The infantile tendencies, normal or otherwise, may be energetically repressed and hidden by the subject, but crop up after puberty as the neuroses and psycho-neuroses.

(3) The sexual tendencies may be directed towards a purely psychic end, in art, science, or mysticism—and this process is termed "sublimation."

It is interesting that this conception of Freud should seem to support the old idea of the purely sexual origin of hysteria. Examined closely, however, its acceptance is full of difficulties. Doubtless there are children vicious from a very early age, and some develop the habit of masturbation untaught. But Freud invests certain acts of the infant with a sexual significance, and then from these acts postulates the existence of an infantile sexuality. Yet it is notoriously difficult to penetrate the child's psychology; even so simple a problem as whether the infant of a year old can distinguish colours has not yet been solved. How much more difficult to say whether the satisfaction which an infant

seems to derive from sucking its thumb is of a sexual nature or not! There is an inevitable tendency to attribute our own mentality to the child, and to interpret its actions in terms of our own—a simple method, no doubt, but one leading to quite false results, for, as a thousand disconcerting occurrences daily demonstrate, the child-mind is almost an unknown country to us.

The traces of infantile sexuality found in the adult are largely artefacts, due to the suggestibility of the subject, and to the suggestions of the psycho-analyst.

Other objections to Freud's theory are based on anatomical grounds. No doubt the infant has sex, but it is latent only, and the anatomical provisions which exist even before birth have only a potential significance. Sex, though present, has no part in the vital mechanism; there is an absolute lacuna of function, in spite of the presence of organs destined for future use. In the development of the embryo the appearance of the genital organs of ejaculation and copulation is independent of that of the genital glands, and we may find the efferent organs of one sex associated with glands of the other. Also, it is noteworthy that the interstitial tissue filling the spaces between the follicles of the seminiferous tubes, to which of late is attributed an important rôle in the development of the sexual appetite, is of somatic and not genital origin. It has in itself no sexual significance, but acquires one as soon as the associated germinal tissue takes on its special activity, *i.e.*, at puberty. Only then do the sexual glands begin to throw into the circulation their hormones, which on the one hand produce the secondary sexual characteristics, determining the excitation of the certain zones, and on the other by their action on certain groups of cortical cells give rise to psycho-sexuality.

Before puberty, then, there should not exist tendencies and manifestations truly sexual, since these are connected with the exercise of a function as yet in abeyance. When such seem to be present, the cause may lie in faulty interpretation on our part, crediting the child with the impressions and intentions of the adult, or they may result from a precocious education in vice.

According to Freud the age of eight years is the limit beyond which the manifestations of infantile sexuality are incapable of causing the neuroses of maturity. The author believes the exact opposite to be the case, and that it is only after puberty, or in the years immediately preceding it, that sexual variations liable to give rise to future trouble betray themselves.

W. STARKEY.

A Contribution to the Doctrine of Psycho-sexual Infantilism [Zur Lehre vom psycho-sexuellen Infantilismus]. (Zt. f. Sexualwiss, August, 1914.) Juliusburger, O.

From the alienist's standpoint, the author seeks to emphasise the importance of psycho-sexual infantilism. We are far too free, he states, with our diagnosis of neurasthenia, sexual neurasthenia, hysteria, and psychopathic inferiority, etc., without investigating the ontogenetic and phylogenetic build of the individual. Not only from the theoretical standpoint, but for therapeutic and forensic reasons, it is necessary to give much more attention to infantilism.

Juliusburger is chiefly concerned with the psychic aspects of infantilism, but he points out that developmental arrest—a physical hypoplasia—is never to be missed. The naïve childish expression is also plain and characteristic, together with a lack of differentiation in expressional movements. The outspoken and decided expression belonging to each sex is absent, and traits of the opposite sex are often present.

There is commonly no gross defect in intelligence. But on nearer view we find a lack of strength and depth, inability to reason abstractly, and a failure of causal connection between series of ideas, although superficially there may be a quick and lively flow of speech and thought.

In the emotional sphere there are manifold disturbances. Hypochondriacal feelings of every kind may be found, with excess and defect of sensibility, and organically conditioned disturbances of function due to failure of harmonious development. There is marked instability of mood, the emotional waves quickly rising but very soon falling. Egoism is prominent, and accompanied by a poverty of sentiments, which approaches so-called moral insanity. With these emotional disturbances the tendency to terror and anxiety, with their related phobias, is closely connected. Day-dreams, and the conscious or unconscious tendency to falsehood, openly bear the infantile stamp.

The nature of the impulsive life is very characteristic of infantilism. The inclination to seek sexual satisfaction in psychic or psycho-somatic association with youthful individuals of the same sex is a fixation of infantile activity. The complementary attitude of attraction to older persons is equally a fixation of the infantile attachment to parents and others. This attachment need not be sexual; it may be throughout a purely psychic, but abnormal, dependence of the child on its parents. Such persons remain helpless and timid, in life-long need of guidance, unfitted to take an independent place in life. The opposite condition of childish resistance and obstinacy, persisting into adult life, may also be found. Juliusburger agrees with Eulenburg and Bloch that persistent sexual frigidity and impotence are to be regarded as infantile manifestations, as also masturbation when unaccompanied by normal adult imaginative images. Very frequent, again, in the infantile character are homosexual components. Regressive infantile traits have also their part in various psychoses.

Surveying all the phenomena, the author concludes that the essential character in all these cases is a persistent infantilism. There is an inability to develop (we are dealing with defective persons) in spite of any superficial brilliance in arts and science. Sublimation, the powerful process by which lower psychic energies are transferred to higher psychic energies, is lacking in these persons, who are dysharmonic and approach the schizophrenic type.

The therapy must take into account the whole psycho-somatic personality. We must not expect too much when we remember the organic foundation of the symptoms, but Juliusburger views organotherapy with much hope, and refers to the experiments of Steinach and the investigations of Abderhalden.

HAVELOCK ELLIS.

Observations on Dementia Præcox. (New York State Hospital Bulletin, February, 1915.) Treadway, W. L.

It is generally recognised that individuals of *shut-in personality* are essentially the type to break down with this disorder. But the original descriptions of this make-up largely left out of account the abnormalities of the sexual life. It is now possible to say more about this. In women there is often an unnatural attitude towards the opposite sex, engagements, marriages, and childbirth being important precipitatory factors. In men there is often a marked inability to attain adjustment to the other sex, and especially a shrinking from marriage and an inability to fall in love, often combined with free intercourse with prostitutes. This defect of sexual adaptation is part of a native congenital defect by which the individual, being unable to attain adult sexuality, remains fixed in infantile tendencies, the psychic pubertal changes being incompletely effected, with the result of a warped love life. This shows itself in various ways. There may be persistent and total impotence. Or there may be homosexual tendencies. Or there is an inability to combine the sexual feelings with the finer feelings, and to bestow them both in combination on one woman; there may be sexual gratification without tenderness and regard, and tenderness and regard without sexual gratification, but the two sets of feeling cannot be fused into one. It is admitted that these maladaptations are not confined to dementia præcox, though they help to explain why some precipitatory causes induce it.

These views, which are obviously in large measure Freudian, are illustrated by several cases. In all the cases it is shown that there has been, notwithstanding sometimes an attraction to prostitutes, a lack of adaptation to adult sexual love, sometimes a terror of marriage, frequently a homosexual tendency, showing itself in indirect or delusional forms; there always seems to be some infantile attempts to escape from the true love destiny—that is to say, marriage.

HAVELOCK ELLIS.

The Newer Work upon Homosexuality. (New York State Hospital Bulletin, November, 1914.) Pierce Clark.

The author considers that the modern direction of advance in the study of the neuroses and psychoses renders absolutely necessary for the alienist a deeper and clearer knowledge of the development of the psychosexual life. Retarded condition of sexuality, fixation of the child to an early phase of sexual evolution, undue emotional elaboration at some special period of psychosexual development, may explain much in the neurotic and psychotic. In the near future also it will be necessary to investigate the extent to which the irregularities are inherited. The study of homosexuality has been especially neglected, nor has due care been taken to distinguish among the homosexual those who may be termed "compulsion neurotics," and are susceptible of cure or at least improvement. It is necessary to take a new inventory of homosexuals, and Pierce Clark here makes a careful critical digest of various recent studies, beginning with a summary of the chief conclusions of Hirschfeld's recent and highly important work, *Die Homosexualität*. He then passes on to Freud and the Freudian

VOL. XLII.

14

psycho-analysts, especially Sadger and Ferenczi, discussing narcissism (self-love), and the Œdipus complex (attachment to the mother with hatred for the father) as phases in the development of homosexuality. He also deals with the distinction between the "subject homosexual" and the "object homosexual." The former, who is by some also considered the true invert, feels like a woman and is attracted to mature, powerful men; the latter feels more like a man and is attracted to boys and feminine men; he is a neurotic, and the victim of compulsion neurosis. (This distinction is, however, by no means so often or so clearly seen in actual practice as Pierce Clark seems to believe, and the "subject-homosexual" is frequently much more neurotic than the "object-homosexual.") He briefly touches also on the place of homosexuality in the mechanism of paranoid states, and the transformation of homosexual attraction into ideas of hate and persecution.

Homosexuality in both men and women, Pierce Clark concludes, needs to be studied in still more detail by neurologists and psychiatrists, for it touches a new phase of the utmost clinical importance in their own future researches. It is really a part of the still larger problem of psychosexual development, normal and abnormal, which lies at the foundation of human conduct.

HAVELOCK ELLIS.

The Father's Significance for the Daughter's Destiny [*Die Bedeutung des Vaters für das Schicksal der Tochter*]. (*Arch. f. Frauenkunde u. Eugenik*, October, 1914.) Sadger, J.

In this characteristically Freudian study Sadger brings forward an able statement of a leading psycho-analytic thesis, with numerous illustrations from practice. The significance of parental psychic influence (apart from heredity) on the fate of the children is regarded as one of the most important results of psycho-analysis. Sadger has dealt more specifically with the direct influence of the father, the indirect influence of his image, and the reactions of both on the conduct and mental condition of the daughter.

In most cases, just as the mother is specially drawn to her son, so is the father to his daughter, and to this attraction she usually responds. Psycho-analytic experience, the Freudian holds, shows that this attraction rests regularly—in those who remain healthy, as well as in those who become psycho-neurotically disordered—on a basis which is, in the vague and wide sense, unconsciously sexual.

This attraction is, indeed (provided that sensuously exciting elements have been escaped), absolutely essential for the child's healthy growth to the adult stage. As the boy learns to love from his mother, so the girl learns from her father, and what the child receives in this first period of life it gives out in the adult relationships of later life. Moreover, the first love of early life largely helps to constitute the image which determines the love-choice of later life. That explains some riddles of love. The resemblance at the outset between husband and wife in marriages of inclination has sometimes been considered puzzling; it ceases to be so, in Sadger's opinion, if we consider that the youth unconsciously seeks a bride in the image of his mother whom he naturally resembles, while the girl seeks a husband resembling her father. A

little girl will often speak of marrying her father or someone like him, and in adult life a resemblance of this kind will actually evoke love.

It is a result of this typical wish of the child that if the little girl is too tenderly treated by her father, the normal transference of affection after puberty is rendered difficult. The daughter may, for instance, find it impossible to decide on marriage. In every wooer she finds some defect, the chief defect being really that he is not her father. The latter may induce her to marry, but in such a case the husband is merely the representative of the father, and while carefully, even too carefully, fulfilling her duties, she is never her husband's sweetheart. Sadger has found in these cases that after the father's death divorce may take place. In other cases not only does the father not press his daughter to marry, but insists that she shall devote all her love to him, while her youth slowly fades away. He is jealous of every wooer, not one is good enough for her; selfishly blind to the wrong he is doing, he declares that there is time enough for her to marry when he is gone.

Apart from the "typical bride-neurosis," which results from sexual needs which are constantly stimulated and constantly repressed, there is another form of neurosis which may not be removed even when marriage has been decided on. The approaching wedding-day is a source of terrible anxiety, and the road to the altar seems the road to the scaffold. Some young women break off several engagements in succession in consequence of the depression thus caused. The author states that in these cases psycho-analytic investigation reveals the influence of the father, or sometimes, in the second line, that of the brother. In yet other cases there is no marriage-phobia; the woman peacefully enters the marriage state and finds her husband sympathetic; yet no sexual satisfaction follows; these women present one of the types of sexual anæsthesia. (Sadger is careful to add that it is not the only type, and that women are often frigid because unable in marriage to satisfy some abnormal component in their sexual nature, for instance, a sadistic element.) In these cases, also, psycho-analysis shows fixation of love on the father or else the brother.

In good middle-class circles, the author remarks, a husband is anxious that he should have no predecessor in his wife's love. But this ideal can never be attained, or at most only on the physical side. The husband is never the first lover; that place belongs to the father or his representative. Marriage, in Freud's words, is always a bad business for the husband; he always occupies at best a second place. This is clearly seen when a rift occurs in a seemingly happy marriage. The wife's love undergoes an infantile regression; the father-imago of her childhood re-emerges as an ideal figure.

The attributes of the father even become identical, in early life, with those of God. Many children see a resemblance to their own fathers in Biblical pictures of God the Father. The religious scepticism of youth in adolescence is often associated with rebellion against paternal authority. The youth becomes an ardent revolutionary in the classroom, as his professor (a representative of the father) knows to his cost. The girl, on the other hand, seldom shares in these rebellious outbursts; for her the professor is the benevolent and attractive representative of the father; for the same reason, also, she more rarely passes

through the atheistic phase, but, on the contrary, when in trouble always finds refuge with God.

We cannot, Sadger concludes, over-rate the significance of the father for his daughter's future life. From the eugenic standpoint, also, the highest development of paternity seems necessary and beneficial for the daughter, and so ultimately, for humanity. HAVELOCK ELLIS.

Experimental Psychology and Psycho-Pathology [*Psicometria e Psicopatologia*]. (*Psiche*, July-September, 1915.) Morselli, E.

The methods of experimental psychology inaugurated by Wundt and his school are no longer viewed with so much enthusiasm as formerly. The veteran Italian psychiatrist here discusses how far such neglect is justified. It is certainly true, he remarks, that such methods cannot reveal to us the intimate nature of consciousness. But could we expect it? The results reached in the determination of simple and complex reaction times, and the measurement of perception, attention, association, etc., are still of real value. The method of measurement remains the method of science, the method not only of physics but of physiology, and if psychology is not to renounce its scientific character it is bound to cherish the positive and experimental discipline of the other sciences. In this connection Morselli defends psychology against the attacks of Bergson and the metaphysicians who discredit scientific investigation of consciousness as merely "spatial." Psycho pathology, however, shows us that there cannot be order in consciousness without quantitative relation and proportion. Anæsthesia and hyperæsthesia, aboulia and hyperboulia, are psychic disorders of quantity; the same may be said of intensity of pleasure and pain as the regulators of life. It is, however, possible to go further in defence of the Wundtian principle of measurement. Such measurement deals with time and intensity, and though we cannot measure emotions and feelings arithmetically and geometrically, we can obtain data which indirectly enable us to appreciate approximately the intensity of an emotional phenomenon when it transfers its inhibitory or dynamogenic action to a measurable intellectual process. In this way the technical methods of Buccola, Kraepelin, Sommer, Obici, and others have rendered it possible to measure the velocity of handwriting or reading in various emotional conditions, or under the influence of various drugs, and thus to obtain knowledge which cannot be regarded as unimportant. So also as regards Jung's association method, to which Morselli assigns a relative degree of value in hysteria, psychasthenia, and even dementia præcox. We must disregard, Morselli concludes, the charges of those who accuse experimental psychologists of trying to find the "essence" of consciousness in mechanism. Neither Wundt, Mosso, Lehmann, nor any other born investigator has been engaged in an absurd search of this kind, any more than the physicist or the chemist are seeking to define the "essence" of the physical world. Yet the results and the indications of Fechner, Wundt, Mosso, Binet, Lange, and the more recent school of Würzburg constitute a mass of determinations which have at least served to demonstrate an irrefutable relationship between thought and extension. HAVELOCK ELLIS.

Violent Temper and its Inheritance. (*Journ. Nerv. and Ment. Dis.* vol. *xlii*, No. 9, 1915.) *Davenport, C. B.*

This is the first of a series of investigations into feeble inhibition, and is issued from the Eugenics Record Office, of Cold Spring Harbour, New York. The study is based on 165 family histories of wayward girls in State institutions. The problem is: How far does heredity play a part in these traits, usually of a highly "emotional" sort—in the present case violent temper—that lie at the basis of criminal behaviour? The general method employed was that of research by a "field worker" into the history of the families concerned, visits being paid to the homes of the patients, and as many as possible of the family examined as to their emotional traits. Further inquiries, if necessary, were made by a special investigator.

In 79 of the families, or about 48 *per cent.*, bad temper of some sort is ascribed as a leading characteristic of at least one individual, and in 49, or about two-thirds of them, it marked more than one individual in the family. As the inquirers were not specially searching for violent temper, it would only be noted when very marked. The present study is concerned with those families only which contained more than one case of violent temper. The fraternities in question fell into three groups: (*a*) with at least one epileptic person in the pedigree; (*b*) with insane, but not epileptic, close relatives; (*c*) with neither epileptic nor insane relatives. In this last group the violent temper is regarded as mainly of hysterical type.

Davenport concludes that the tendency to outburst of temper is not inherited as a positive (dominant) trait, does not typically skip a generation, and tends ordinarily to reappear, on the average, in half of the children of an affected parent. It would seem probable that epilepsy, insanity, and hysteria are not in these cases the causes of the accompanying violent temper, which cannot, therefore, be regarded as clearly their "equivalent." The violent outbursts are, rather, due to an underlying factor that causes periodic disturbance (? paralysis of the inhibitory mechanism), and this factor has greatest effect when acting on a nervous system specially liable to show the other psychoses.

HAVELOCK ELLIS.

3. Clinical Psychiatry.

Crises in Dementia Præcox [*Les "Crises" des Démentes Précoces*]. (*Revue de Psychiatrie*, April, 1914.) *Halberstadt and Legrand.*

Four distinct types of "attacks" have been described in dementia præcox: syncopal, hysterical, epileptiform, and apoplectiform. The authors describe a case in which convulsive attacks were for some time an isolated and prominent feature. From the age of 16 until 32 the patient suffered for some months every year, but was able to continue her work and showed no other morbid symptoms. Then suddenly delusions of persecution, anxiety, and ideas of poisoning and negation made their appearance, followed by signs of mental enfeeblement and a tendency for the delusions to become stereotyped. The clinical features precluded the diagnosis of hysteria or epilepsy, and the con-

clusion is drawn that such convulsive attacks must be definitely included among the clinical signs of dementia præcox. They usually appear at the commencement of the psychosis, sometimes precede the mental symptoms by several years, and tend to diminish in the later phases.

H. DEVINE.

The Binet-Simon Method and the Intelligence of Adult Prisoners. (The Lancet, July 17th, 1915.) Smith, H. Hamblin.

What Tests in Childhood are best calculated to throw Light upon the Capacities of Mental Defectives for Future Work? (The Lancet, July 17th, 1915.) Potts, W. A.

In the first paper the writer describes the results obtained from the employment of the Binet-Simon tests on 160 adult prisoners. He comments upon the relative value of the individual tests, and suggests certain alternative or supplementary ones. The result of his observations are tabulated and can scarcely be epitomised, but the conclusions drawn are summarised as follows: (1) The Binet-Simon method is an excellent means of estimating the standard of intelligence of any particular subject; (2) the method having been primarily devised for school-children, would be rendered more useful for adults if certain modifications were made in its details; (3) that defect of intelligence, as estimated by this method, affords strong confirmation of a diagnosis of feeble-mindedness made upon other considerations; (4) that failure to reach any given standard of intelligence is not of itself sufficient reason for regarding a subject as feeble-minded.

The writer points out that a complete clinical study of all the factors is necessary to justify the diagnosis of feeble-minded, and that a marked deficiency of intelligence, as revealed by these tests, is not sufficient in itself to justify a decision, still less to recommend detention as a mental defective.

The second paper consists of a general review of the various tests for the estimation of the capacity of defectives, with a critical survey of their value.

The writer points out that there are no simple tests by which it can be decided as to whether a defective child will develop into a wage-earner, that the subject is complex and difficult, and that the subject of mental tests is only in its infancy.

The most satisfactory decision would be attained by taking a large group who were submitted to tests ten years ago and inquiring what tests those now supporting themselves passed, and in what directions the unsuccessful failed. As this information is not forthcoming other methods must be adopted, and the following are suggested:

(1) A consideration of the causes of failure in normal individuals and then, if these will operate in the case of defectives, devising a set of lists to determine them. Under this heading four principal qualities are enumerated upon which success in life depends, viz., ability, strength of character and will power, good health, and pluck, and it is shown that it is frequently the absence of these qualities which determines the failure of defectives.

(2) A determination of the good qualities common to a group of employed defectives, and a comparison of these qualities with those of

a group of unemployed defectives. Under this heading an investigation was made to determine how far success in later life would be foretold by the school records. A group of sixty-eight defectives over 18 years of age were investigated from this point of view, fifty of whom had situations, while eighteen were not working. The results obtained show that ability at manual work is the essential, and that if a defective at school has a capacity in this direction, with no special moral or physical defects, he is almost certain to earn a living afterwards.

An important index as to success after school is afforded by evidence of a defective's continual improvement in a special school. This is best determined by the Binet tests. Progress at school usually indicates slow, steady progress afterwards.

(3) An investigation of all known tests to decide which will be of service.

In concluding the paper, the author points out how fallacious any rule-of-thumb method must be, and that a diagnosis can only be made from a record of the school attainments, the rate of advance during the last two or three years, and a knowledge of the social and medical record of the family.

H. DEVINE.

Dementia Præcox, Paraphrenia and Paranoia. (American Journal of Insanity, October, 1914.) Ruby, G. H.

This paper consists of a general review of Kraepelin's present conception of dementia præcox and other psychoses contained in the title. Dementia præcox and paraphrenia are placed under the general heading of "Endogenous Deteriorations," in so far as they both have the common peculiarity of developing independently of any perceptible external influence.

Dementia præcox is now divided into no less than eight sub-types: (1) Dementia simplex; (2) hebephrenia or silly dementia; (3) simple depressive or stuporose forms; (4) depression with delusional formation; (5) excited forms—circular, agitated and periodic types; (6) katatonic forms; (7) paranoid forms; (8) forms with marked speech confusion.

The writer inclines to the view that these artificial subdivisions are desirable, since many cases did not fit into any of the old subforms, and such divisions tend to emphasise clinical differences. Kraepelin regards the disorder as an entity, a definite disease in the same sense as general paralysis, and he regards the deterioration which occurs as due to a progressive destructive process. The primary cause is auto-intoxication arising probably from a disturbance in metabolism, and leading to a widespread and severe disease of the cerebral cortex.

Paraphrenia is differentiated from dementia præcox by the fact that the disturbance is in the intellectual sphere rather than in the will and emotions, chronic delusional states without odd behaviour, deterioration in conduct or emotional indifference. The disorder is sub-divided into the following groups: (1) Paraphrenia systematica; (2) P. expansiva; (3) P. confabulans; (4) fantastica.

Paranoia, which is reduced to a very small group of cases, is regarded as the reaction of an abnormally constituted personality to the struggle

of life, the outgrowth of personal difficulties in adaptation to the environment. It is thus founded on a particular form of faulty make-up, and is brought into the group of psychogenic disorders.

H. DEVINE.

The Rôle of the Psychiatric Dispensary. A Review of the First Year's Work of the Dispensary of the Phipps Psychiatric Clinic. (Transactions of the American Medico-Psychological Association, 1914.) C. Macfie Campbell, M.D.

The author of this paper first deals with the differences between out-patient and in-patient work. Among out-patients, where time is limited, detailed studies are almost impossible, the history is frequently poor, a comparatively quick examination, and quick working diagnosis have to be made. Still, with all the difficulties, very much good can be effected, and in the direction of treatment much use is made of the social service worker who is able to bring about changes in the home life with considerable benefit to the patient.

One of the surprises of this clinic is in the number of children treated. The total number of patients for one year was 708, and included in this number were 236 under sixteen years of age. Taking the adults in order of frequency, first come the psychoneuroses (110 cases), then cases of depression (68 cases), dementia præcox (63 cases), and organic brain disease (58 cases). Adult defectives, epileptics, paranoiacs, alcoholics, unclassified cases, and manic depressives complete the list. The manic depressives gave a total of 16 cases, included in which was 1 case of excitement. An apology is offered for the loose classification involved in including 68 cases under the heading of "depression." Doubtless some of these were cases of manic-depressive insanity; others were cases of involution melancholia, yet there were many others which required more prolonged study than was possible under dispensary conditions. By means of the Social Service Department suitable advice to the relatives, the treatment of physical ill-health, and the correction of faulty mental outlook, good results were forthcoming.

To return to the psychoneuroses. Many of the readers of this Journal, who are concerned more with definite insanity than with these borderland cases, have no doubt often wondered whether the number of such cases would justify the extensive literature which deals with them. It is therefore interesting to find that they comprise 15 per cent. of the total.

It is worth while to quote the figures :

Psychoneuroses (including ill-defined cases of nervous invalidism). Total	110
Anxiety-neurosis	21
Hysteria with attacks or purely physical symptoms	23
Hysteria with morbid fears	19
Obsessive thoughts and actions	14
Hypochondriacal and neurasthenic states	13
Nervous invalidism of less well-defined type (frequently inadequate data)	20

Dr. Campbell thinks that these cases will always be an important factor in dispensary work, because, owing to the less severe nature of their symptoms, the patients frequently are disinclined to come into a hospital, and because their treatment is, as a rule, too prolonged for continuous hospital residence. The difficulties in the treatment, and the limitations imposed by lack of time are dwelt upon, but the author is optimistic, and says that even with a few interviews the results are sometimes striking, and that though results rapidly attained may possibly be only transitory (sufficient time has not elapsed to speak with certainty), the general impression left by dispensary work is that "dispensary conditions are not unfavourable for the treatment of this class of patients."

With regard to the children, who formed exactly one third of the total number of patients, 148 showed definite intellectual defect, some without other symptoms, and others with, in addition, speech, sense, or moral defects, or epilepsy, chorea, or hysteria. Twenty-five children were practically normal, and the remainder, numbering 63, presented a great variety of clinical problems. Several interesting cases are given in detail, and the author is hopeful that from the study of such cases light will be thrown on the development of the psychoneuroses. Finally the author gave a short account of the cases of organic brain disease, general paralysis, and dementia præcox.

One cannot help feeling that when the present upheaval subsides with the end of the war attempts should be made by the members of our Association to establish out-patient mental departments in connection with every general hospital in the kingdom. The work of the Phipps Clinic forms a guide as to the kind of case which may be expected to attend.

The general review is worth quoting *in extenso* :

"In reviewing the work of the dispensary during the past year one is impressed with the valuable nature of the material which is there offered for study. It is in the dispensary that one will find perhaps the best material for the study of many nervous and mental disorders in children, and of the incipient stage of many of the disorders of the adult. In connection with the dispensary one will be able to reach some conclusion as to the course which such disorders run if, at an early stage, they are taken seriously and an earnest endeavour made to modify these factors which seem largely responsible for the disordered adjustment. After some years one will have material which may be useful in demonstrating that many disorders, which we are accustomed to look upon in a rather fatalistic spirit, can be very much modified by serious treatment, not only of the individual patient, but of the environment in which he is living. The dispensary material emphasises very strongly how much is gained by considering the individual in relation to his environment, not merely as a unit by himself."

R. H. STEEN.

4. Pathology of Insanity.

On the Degeneration of the Cerebral Commissures and the Hemispheres in Chronic Alcoholism [Sulla degenerazione delle commissure encefaliche e degli emisferi nell'alcoolismo cronico]. (*Rivista Sperimentale di Freniatria*, vol. xli, fasc. 1, March, 1915.) Bignami and Nazari.

In 1911, in Ziehen's *Monatschrift für Psychiatrie und Neurologie* (vol. xxix) Bignami published, with Marchiafava, observations of twelve cases of degeneration of the cerebral commissures in patients who had suffered from chronic alcoholic intoxication, and since that date four other similar cases have been reported in Italian medical journals. In the present paper the results of this earlier communication are recapitulated, and 19 fresh cases are reported which have come under the authors' notice within the last four years. In explanation of the relative rarity of confirmatory records by other observers, the authors point out that the morbid condition in question, which is visible to the naked eye in frontal vertical sections of the hemispheres, is readily overlooked when the brain is divided on other lines.

The characteristic lesion found in all the cases is a degeneration affecting the fibres of the corpus callosum and extending antero-posteriorly from the genu to the splenium, and laterally to a variable distance into the corona radiata. It is most distinct in the anterior part of the corpus callosum. In frontal vertical sections the degenerated area is always, even in advanced cases, limited dorsally and ventrally by two complete layers of white matter of normal appearance. Histological examination shows the morbid process to be a primary degeneration of the nerve-fibres; secondary proliferation of the neuroglia elements is ordinarily very slight in degree, and the vascular walls are little affected. In some of the cases pathological changes similar to those described were also found in the anterior commissure, the middle cerebellar peduncle, and in the centrum ovale. In the series of observations recorded in the present paper special note is made of the frequency of these latter sub-cortical alterations. The regular limitation of the morbid changes to certain parts of the commissural tracts gives a systematic character to the degeneration, and suggests an interesting analogy with the degeneration, also axial in position, which the same toxic agent produces in the optic nerve.

In all the cases in which this condition was found *post mortem*, and in which the patients had been under observation during life, a characteristic symptom complex was recorded, distinguished from the ordinary clinical picture of chronic alcoholism by the frequency of apoplectiform and epileptiform attacks, and by the rapid decadence, with remissions and exacerbations, to a state of marasmus. The authors state that this commissural degeneration is never found in the absence of chronic alcoholism. The paper is illustrated by a plate showing the naked-eye appearances in transverse vertical sections of the brain.

W. C. SULLIVAN.

5. Treatment of Insanity.

The Modern Treatment of Inebriety (Transactions of the American Medico-Psychological Association). Neff, Irwin H.

The State of Massachusetts has for many years been amongst the foremost of civilised communities in its efforts to combat and control the evil of habitual drunkenness by practical measures, and in his paper on "The Modern Treatment of Inebriety" Dr. Neff gives a sketch of the most recent methods adopted by that State for the attainment of this end.

Special treatment for male inebriates has been provided by Massachusetts at the Foxborough State Hospital for twenty-two years. The mode of admission up till recently was by committal from a court—municipal, district, or police court—upon certification of two physicians that the man is "subject to dipsomania or inebriety either in public or in private, or . . . is so addicted to the intemperate use of narcotics or stimulants as to have lost the power of self-control," and "is not of bad repute or of bad character apart from (his) habits of intemperance."

Since 1907 provision has been made for the admission of voluntary patients, either directly or from the criminal courts, with the result that during the year ending November 30th, 1913, the number of committal cases was 171, and of voluntary cases 577. This fact alone shows the popularity which the system has attained, and to what an extent it has won the confidence of the inebriate class.

The curative measures employed are chiefly directed, in the first instance, to bringing about improvement in physical health. "Special individual treatment to build up the body, mind, and character of each patient. . . . Good physical health is the foundation upon which cure of habitual drunkenness must be built." This is supplemented by a systematic arrangement of work and rest, not merely for the benefit which this directly confers on the patient, but also for its indirect effect in developing and, if possible, permanently establishing habits of regularity, in which every inebriate is notoriously deficient. Needless to say, a thorough examination of the patient as to his bodily and mental condition precedes the adoption of the curative means employed in each individual case, and the cause or causes of the malady are investigated as exhaustively as possible. The work assigned to each patient is selected with the greatest care, as that which is best suited to his interests and capacities, and even the employment of his leisure hours is catered for with equal assiduity, so as to provide what is most congenial to individual tastes and temperaments.

In addition to these ground principles of treatment—so we may call them—great stress is laid on the important influence of suggestion. Not suggestion in the technical (hypnotic) meaning of the term, but in the sense of moral suasion. This is practised repeatedly, continuously, by the physician, who unceasingly endeavours to make his patient vividly realise (1) the danger to himself and others certain to accrue from his drinking habits, (2) the necessity for complete abstention from alcohol in any shape, and (3) the prospect of his achieving success through perseverance in steady work and regular habits. "No two

cases are precisely alike, nor can they be successfully treated by any stereotyped plan. Diagnosis by a physician of specialised training in nervous and mental diseases, and continuous suggestive treatment under his direction, adapted at every point to the physical and mental needs of the patient, are essential to cure."

But the care of the patient does not cease with the cessation of hospital treatment. Since 1909 a new and most important provision has been adopted. Prior to that date a patient when discharged had to run all the risks of a return to his old and unfavourable surroundings, of renewed association with old boon companions, possibly of a more or less comfortless home, without any counteracting influence, a condition of things not unlikely, sooner or later, to bring about a relapse. To meet this difficulty, and help the patient at probably the most critical period of his recovery, a special out-patient physician has been appointed in connection with the hospital, who makes himself familiar with each case while in the hospital, and also with the patient's family. "Before the discharge the family is shown how they can co-operate in perfecting the cure. Work is found for the patient before his release. He is associated with local persons, or local clubs, or religious organisations that will look after him, and provide temperate friends and wholesome amusement. By frequent visits to the hospital, and visits from the out-physician, the suggestion made at the hospital is reiterated, until years of abstinence prove that further oversight is no longer needed."

This after-care of inebriates is conducted almost precisely on the same lines as in the case of a number of institutions which have been founded in Germany within recent years for the treatment of patients suffering from various forms of nervous disease, exclusive of insanity, an account of which, by Dr. Bresler, appeared in the Journal for April, 1914.

But Massachusetts has not contented itself with this organised system of hospital treatment and after-care, however admirable it may be. For the past six years it has been taking further steps with a view to grappling more effectually with the problem of drunkenness. During this period two special commissions were appointed, and on their recommendations valuable legislative measures have been based, the outcome of which has been the establishment of a colony system for the treatment of inebriates. Penal institutions for drunkards, and punitive measures of any kind, such as we persistently cling to in these countries, are wholly condemned. They have been weighed in the balances and found wanting. As far as remedying the evil of drunkenness, they are practically worthless. But the necessity for a uniform plan, with centralised control—State non-punitive control—is insisted on.

For the typical inebriate institution a large tract of land, not less than one thousand acres, should be available, so as to afford liberal provision for both employment and recreation. Over this are distributed a large number of cottages, the cottage being the unit of the system, varying in size according to requirements, the maximum accommodation in any one being twenty-five. The cottages are arranged in groups, each group forming a colony, each colony being adapted for the treatment of one particular class of patient. There are, thus,

four kinds of colonies: (1) For incipient, hopeful cases; (2) for more advanced male cases, such as may need custodial care; (3) for refractory male cases, who may require more or less restraint; and (4) a colony for inebriate women. In Massachusetts the system has been initiated, and is now already in active operation, a number of cottages having been built, which are occupied by patients. A group of buildings has also been erected, to serve the purpose of administration, and for the reception of patients.

Connected with the institution is an out-patient department, with its office in a metropolitan area, not too remote. Its functions are: (a) Preliminary examination of the patient for the purpose of differentiation; (b) visits to patients while at the hospital; (c) visits to the homes of patients before their discharge from the hospital; (d) visits to patients after discharge. This department is in charge of a physician, and is conducted by the State as a permanent central office.

Lastly, detention hospitals are provided as adjunct institutions to the central hospital, situated in the various cities and towns, and fitted for the care and treatment of cases of acute alcoholism, although not necessarily erected for that purpose. These fulfil certain definite objects, *viz.*:

- (a) The treatment of delirium tremens.
- (b) To serve as an observation and receiving ward for the parent hospital.
- (c) To provide a clinic for incipient cases of inebriety.
- (d) To serve as sub-offices for the out-patient department.
- (e) To provide medical officers to visit prisons to examine cases arrested for drunkenness, and to determine their fitness for treatment at the hospital.

The system, therefore, comprises three essential and mutually dependent parts:

- (1) A State hospital, developed on the colony plan.
- (2) An out-patient department, with broad and well-defined duties.
- (3) Detention hospitals.

The whole scheme of treatment appears to have been well thought out and elaborated. Thoroughness, individualisation, and after-cure supervision are the cardinal principles essential to success, and the organisation in all its details seems well-nigh perfect. It contrasts favourably with the half-hearted and ineffective measures in vogue in these countries for dealing with the habitual drunkard, where an inordinate veneration for that fetich (in this connection), the "liberty of the subject," has been always a bar to the adoption of resolute legislative action which might prove a real check to the prevalence of inebriety, and ultimately bring about inestimable results to the nation at large. Future legislation might well follow on the lines so admirably devised by the State of Massachusetts.

T. DRAPES.

6. Sociology.

Prostitution and Mental Deficiency. (Social Hygiene, June, 1915.)
Clarke, Walter.

The author, who is a "Field Secretary" to the American Social Hygiene Association, here brings together and discusses various recent American investigations into the mental condition of prostitutes, with special reference to the hereditary factor of amentia in the causation of prostitution. As regards the general prevalence of amentia, it may be mentioned that a recent commission on the extent of feeble-mindedness reported that in the State of New York there are 21,000 aments who are not in any institution for the care of the mentally deficient, and 3,000 of them are between the ages of sixteen and forty-five.

The Virginia State Board of Charities states that of 120 prostitutes examined 42 (35 *per cent.*) were imbeciles, and 58 (48.3 *per cent.*) were morons. Thus 83.3 *per cent.* were mentally defective. The physician of the Chicago Morals Court in her first report (1913) concludes that of 639 prostitutes whom she examined, over 400 were mentally deficient and 68 little more than imbeciles, that is, approximately, 62 *per cent.* were aments. Dr. Hickson, of the Chicago Psychopathic Laboratory, examining 126 women brought before the Morals Court, and using modifications of the Binet-Simon and other tests, found that 85.6 *per cent.* (excluding the insane, alcoholics, and drug-habitues) were distinctly feeble-minded. At the Training School of Geneva, Illinois, of 104 girls committed for sexual delinquency, 97 *per cent.* were found by Dr. Olga Bridgeman feeble-minded by the Binet tests, and were "helpless victims, who under close supervision may lead useful, contented lives." In Massachusetts a careful and scientific investigation was carried out by Dr. Fernald in 1914. He selected 300 prostitutes at random (100 each from a prison, a detention home, and an industrial school) and found that, when all doubtful cases were recorded as normal, 51 *per cent.* were feeble-minded in so pronounced a degree as to warrant legal commitment. As measured by the Binet tests only 22 of the 154 women had a mentality of over the age of ten, and not more than 6 of the entire number seemed to have really good-class minds. At the Massachusetts Reformatory for Women at South Framingham in 1914, Dr. Edith Spalding, using the Binet-Simon tests in doubtful cases, found that among 243 inmates 49 *per cent.* prostitutes were mentally subnormal or aments; there were also many borderland cases. At the New York State Reformatory for Women in 1914 Dr. Jean Weidensall, the resident psychologist, examined 200 women as they came in sequence from the courts by the Binet test, revised by Goddard, and found that only 0.5 *per cent.* could pass the twelve-year-old test; Dr. Katharine Davis at the same institution found that of 116 women 37.9 *per cent.* could be definitely declared mentally defective.

Clarke concludes that the correlation between prostitution and amentia is sufficiently striking to demand more careful mental examination of all pre-adolescents, and more elaborate provisions for the discovery, training, and protection of children whose minds are not

normally developed. But he points out that all these groups of prostitutes are inmates of institutions, and therefore already a selected class, which cannot represent the average prostitute, for we may safely assume that only the dullest and least efficient mentally are likely to fall into the hands of the authorities. He also comments that norms have not yet been established for women of the same social standing, employment, education, and age as those to which most prostitutes have belonged before entering on their irregular life. Tests have not been made on a large scale of ordinary char-women, factory girls, and domestic servants. We cannot, therefore, positively say, at present, that prostitutes are more or less intelligent than the groups of women they spring from. There is also some question as to the applicability of the Binet-Simon tests; Dr. Weidensall gave the Binet tests to a number of Chicago Normal School girls, with the result that a large number failed to scale up to normal, though, as a matter of fact, there could be no question regarding their normality. Yerkes believes the Binet tests to be unsuited for post-adolescents, and Frederick Ellis states that at the New York Neurological Institute experience shows that the Binet-Simon scale has a higher value for group study than for the interpretation of individual cases. The mental tests should also be accompanied by careful physical tests. The wider range in the results (from 97 *per cent.* to 29 *per cent.*) must also be observed. On the whole, it must be said that the precise correlation between prostitution and amentia is not yet determined, but that the most accurate and consecutive studies thus far indicate that about one half of the prostitutes in institutions are mentally defective.

HAVELOCK ELLIS.

Psychoses among Negroes: a Comparative Study. (*Journal of Nervous and Mental Diseases*, vol. xli, No. 11, November, 1914.) E. M. Green.

The asylum of which Dr. Green is director receives all the cases of insanity from the State of Georgia, and therefore affords exceptionally good opportunities for a comparative study from the statistical point of view of the characteristics of mental disease in negroes and whites living under fairly similar conditions of environment. The paper is based on the records of the patients, 5,410 in number, admitted to the asylum during the five years 1909-13. Of this number, 3,291 (1,855 males and 1,436 females) were of the white, and 2,119 (1,096 males and 1,023 females) of the coloured race. The point which the author specially considers is the incidence of the several forms of mental disease in the two races, as shown on comparing the percentage ratio of each form to the total number of admissions in the racial group. The results obtained by this method of comparison are summarised thus:

(1) Psychoses occurring with equal frequency in both races: Brain tumour, traumatic psychoses, infective-exhaustive psychoses and allied states, psychoses accompanying pellagra, and epileptic psychoses.

(2) Psychoses occurring more frequently in the white race: Psychoses accompanying nervous or brain disease other than tumour and general paralysis, alcoholic psychoses, drug psychoses, involution melancholia, undifferentiated depressions, symptomatic depressions, paranoiac conditions, psychoneuroses, constitutional inferiority, idiocy, and imbecility.

(3) Psychoses occurring more frequently in the negro race: Senile psychosis, general paralysis, dementia præcox, and manic-depressive insanity.

It is interesting to note that alcoholic insanity is much more prevalent in the white population, accounting for 4·1 *per cent.* of the admissions as against 1·4 *per cent.* amongst the negro patients; and in the drug psychoses the predominance of whites is even more marked—only six cases occurring amongst coloured patients as compared with 142 (4·3 *per cent.* of the total admissions) amongst the whites. The author would explain the rather surprising rarity of these psychoses in the coloured population as due to the lower economic *status* of the negro, which prevents him from indulging freely in the extravagance of drug taking. General paralysis was found to be far more prevalent amongst the negro patients, the percentage of the disease calculated on the admissions during the five-year period being: White males, 4·5; white females, 1·2; negro males, 10·2; negro females, 4·2. This is ascribed by the author to the wide diffusion of syphilis in the negro population, and to the difficulty of inducing infected subjects to submit to regular treatment. A simple dementia is the most common clinical form of general paralysis in negroes. In the affective psychoses in coloured patients there is a marked predominance of gay and expansive moods due apparently to racial temperament.

W. C. SULLIVAN.

Part IV.—Notes and News.

THE MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.

THE QUARTERLY GENERAL MEETING of the Association was held at the Medical Society's Rooms, No. 11, Chandos Street, Cavendish Square, London, on Tuesday, November 23rd, 1915, Lieut.-Colonel David G. Thomson, M.D., President, in the chair.

There were present: Drs. H. M. Baker, C. H. Bond, D. Bower, P. E. Campbell, J. Chambers, R. H. Cole, E. M. Cooke, T. Drapes, J. H. Earls, C. H. G. Gostwyck, A. H. Griffith, B. Hart, H. E. Haynes, H. A. Kidd, N. Lavers, W. H. C. Macartney, A. Miller, A. W. Neill, W. F. Nelis, H. J. Norman, J. G. Porter Phillips, Bedford Pierce, J. N. Sergeant, Sir G. H. Savage, G. E. Shuttleworth, R. P. Smith, J. G. Soutar, T. E. K. Stansfield, H. Stewart, R. C. Stewart, T. S. Tuke, W. R. Watson, H. Wolseley-Lewis and R. H. Steen (Acting Hon. Gen. Sec.).

Visitor: Dr. Edith R. Spaulding.

Present at Council Meeting: Lieut.-Col. David G. Thomson (President) in the chair. Drs. James Chambers, R. H. Cole, Thomas Drapes, Norman Lavers, H. Wolseley-Lewis, A. Miller, Hubert J. Norman, J. G. Soutar, T. E. K. Stansfield, T. Seymour Tuke, and R. H. Steen.

Apologies for absence were received from: Drs. G. Douglas McRae, R. B. Campbell, G. S. Pope, Donald Ross, W. R. Watson, H. H. Newington, T. S. Adair, and J. W. Geddes.

MINUTES.

The PRESIDENT said the minutes of the May meeting required confirmation. They had already appeared in the Journal, and perhaps members would agree to accept them as correct.

This was agreed to.

OBITUARY.

The PRESIDENT said he regretted that there were one or two matters to which he must allude before the general business of the meeting was commenced. Since the Association's last meeting two very important men in the specialty had passed over to the majority. The first of these was Sir James Moody, his own late Chief. Sir James Moody, as members knew, was the doyen of the London county asylum superintendents; he was a man whom members all knew officially, and some knew privately, a man for whom he, Dr. Thomson, who worked under him for three and a half years, had the greatest respect and admiration, and to whom he owed, personally, any administrative capacity he possessed. He died not long ago, in full harness, keen and enthusiastic in his work to the last. He proposed that a vote of condolence be sent from the Association to his widow, Lady Moody.

He had other proposals of a similar kind, and he would ask members to take them together. The next member whose loss was deplored was Dr. A. R. Douglas, also a very well known man, and a great authority on all matters connected not only with administration, but with the medical aspects of the feeble-minded. He was Medical Superintendent of the Royal Albert Institution.

The Association has also to regret the death of Dr. W. H. Macfarlane, not so well known to London alienists, as he had been for some years in the Colonies. He was Medical Superintendent of the Hospital for the Insane, New Norfolk, Tasmania.

Coming to the war victims, since the last meeting, Captain Arthur Kellas, of the R.A.M.C. (T.F.), had been killed at the Dardanelles. He was Senior Assistant Physician at the Royal Asylum, Aberdeen. Lieut. Edgar Faulks had been killed in France. He was Senior Assistant Medical Officer at Bexley Asylum.

Another member of the specialty, though not of the Association, Dr. Francis Wisely, had died at Alexandria of wounds received at the Dardanelles. He was Assistant Medical Officer at Worcester County Asylum, Powick.

The sympathy of the Association should also be extended to Dr. John Carswell, a very prominent and well-known member of the Association, and Commissioner of the Central Board of Control, Scotland, who had lost his youngest son, killed in France.

To the relatives of all the gentlemen who had passed away, he asked members to pass a resolution of condolence.

The resolution was passed by members rising in their places.

ELECTION OF CANDIDATE FOR MEMBERSHIP.

The PRESIDENT nominated Dr. Tuke and Dr. Soutar as scrutineers for the ballot in regard to—

GRAY, CYRIL, L.R.C.P., L.R.C.S., etc., Edin., Assistant Medical Officer, Gateshead Borough Asylum, Stannington, Newcastle-on-Tyne.

Proposed by Drs. J. B. Tighe, T. Stewart Adair, and Richard Kelly.

The scrutineers reported that Dr. Gray had been unanimously elected.

The PRESIDENT said members would remember that some time ago it was resolved to send the name of any member of the Association to the Secretary who was known to be absent on national service. He feared that direction had not been very fully attended to; hence he wished to remind members of it.

THE PRESIDENT'S ADDRESS.

"A Descriptive Record of the Conversion of a County Asylum into a War Hospital for 1,050 Sick and Wounded Soldiers in the Year 1915" (see p. 109).

Dr. MARRIOTT COOKE remarked that he had listened with pleasure to the very interesting, full, and accurate account given by Lieut.-Colonel Thomson. He thought it would have been difficult, if not impossible, to give a better *résumé* of the great movement than the President had done. The members might perhaps be interested to know what had been its practical effect hitherto, and so Dr. Bond and he had brought statistics as to the number of patients who had been admitted into their hospitals, and what had happened to them. They were fortunate in

having, from all the twelve hospitals, monthly returns. By the first of the present month these twelve hospitals had admitted no less than 23,996 sick and wounded soldiers. Of that number, 14,776 had been discharged or transferred, 101 had died, and there remained under treatment at that date 9,120, leaving, at the same time, vacant beds for 4,108. That was a record of which he thought the specialty might well be proud. Those who had organised these hospitals with so much ability and with so much patience had, perhaps, the greatest reason to feel proud; but he ventured to think that all the other asylums in the country had also cause for the same feeling, because if it had not been for the way in which they had assisted in this movement, and come forward to help by receiving patients, thereby putting themselves to a great inconvenience, this movement could never have been successfully brought into being. The President had dealt in his address with every matter in such a thorough, exhaustive, and well-balanced way, that he thought it would be almost invidious of him, the speaker, to follow to any extent in his footsteps. There were, however, several points which one might emphasise. One was the remarkably successful way in which patients were transferred from vacating asylums owing to the admirable manner in which the arrangements were made. People outside were astonished when he told them that the asylums had moved 10,000 lunatics, some of them as far as 150 miles. They asked, "Have you not had a great many accidents?" and they have been surprised when assured that there had been practically no untoward event. What Colonel Thomson said about the staff was particularly true and interesting. Many of the asylum nurses had had a very arduous time, and it only shows how satisfactorily they have been trained that they had acquitted themselves so well. The War Office matrons were already fully alive to their worth. The administrator of one hospital (a permanent officer in the R.A.M.C.) said that if it had not been for the asylum attendants, he did not know what they would have done, as they were the backbone of his orderlies.

Lieut.-Colonel H. A. KINN (Graylingwell War Hospital, Chichester) said he would like to associate himself with the tribute which had been paid by Dr. Cooke to the most excellent paper which the President had read. It was extremely interesting to him, as a fellow worker in the same line as Dr. Thomson, to hear what he had to say, and the way in which he had stated the details of the hospital organisation. He wished to express his extreme indebtedness to the superintendents of the receiving asylums in the country for the very great assistance he had received in the transferring of his patients; they had helped the movement in every possible way. He also wished to associate himself with what the President said concerning the Board of Control. In the early days of the movement they very much appreciated the ability with which this scheme was brought into being. One felt very thankful that there was a Board of Control to save one from the grave errors which otherwise would have been committed. It would be useless for him to say anything with regard to the organisation and construction of one's own building, therefore he would supplement what the President said by referring to the work of these hospitals. Dr. Cooke had given a general summary, but it might interest the meeting to know what a particular hospital had to do. His hospital had 1,000 beds, and affiliated with it was the West Sussex with 50 beds, and seven auxiliary hospitals with 300 beds. The hospital had been open six months. During this month they had taken in 313 cases and discharged 380. There had been 3 deaths. During the whole period in which the building had been open they had admitted 3,767 patients and discharged 2,938. There had been 22 deaths. There were 864 on the books and 350 vacant beds. With regard to the character of the cases, they had had all kinds. The first day's experience was to receive 490 cases in thirty hours, mostly from the Dardanelles, though there were also some from Flanders. There were wounds of all sorts, and a large number of medical cases, especially latterly, from the Dardanelles. In peaceful times at ordinary hospitals, if they took in ten patients in one day it was considered a hard day. The rate at which patients were admitted was interesting. Notice was received of a convoy coming to the station, numbering 200, and they were admitted to the wards, cleaned, and had their Bovril, etc., inside a couple of hours. A word might also be said as to the nature of the cases which had been received lately. He received a telegram announcing the coming of a convoy from the Dardanelles, consisting of 200, 170 of which were enteric, and the remainder cases

of dysentery. He mentioned this because in the usual way a large proportion of the cases received were surgical, only a few medical, and preparations had been made accordingly. Yet in a quarter of an hour the whole arrangements had to be altered. The last convoy of cases of supposed dysentery, though a number were paratyphoids *a* and paratyphoids *b*, largely *b*, were to a considerable extent convalescent. Of the dysentery cases, very few had been of the acute form. Being between Southampton and Dover, a bad lot of cases were sent to his hospital, some so seriously ill on arrival that they die within a day or so of admission. In the past he had been interested in the subject of dysentery in asylums. The method of treatment consists in giving drachm doses of sulphate of soda, also by injections of eusol. Sometimes appendicostomy is done, and the cases do remarkably well. It is astonishing to see how these cases improve and go out again. Another point he would like to refer to was, how extremely easy it is to deal with wounded soldiers in the matter of discipline. They give practically no trouble at all. He was very glad to hear what the President said about the nursing staff. Asylum officers were proud of their old nursing staffs. The War Office had supplied him with an anæsthetist, and he was indebted to Dr. Bond for sending him a lady doctor lately. Apart from that he had to get his own medical and nursing staff in a short time, and had been very glad to find how extremely well they had been doing, and the way in which they had adapted themselves to the changed conditions. The President had put it very well when he said they were nurses possessing a nursing certificate, who had had some years' training, and some had had charge of wards, and they now suddenly had to give up such charge, and serve under others, doing work of lesser degree. That work they had done well and uncomplainingly, and he was glad to say they had been much approved by the general nursing staff, so much so that several of his mental nurses had been, at its instance promoted, and were acting staff nurses. The X-ray work at the hospital was, of course, heavy, and it was good. All surgical cases were radiographed, and he had brought a selection of radiograms, which he would be pleased to show to anybody interested.

Lieut.-Col. VINCENT (Wadsley War Hospital) sent a communication, entitled "Use of Asylums as Military Hospitals" (see p. 174), which was taken as read by the meeting.

Dr. G. M. ROBERTSON (Edinburgh) said he wished to add his praise of the most excellent account which the President had given of the conversion of a mental hospital into a war hospital for the treatment of sick and wounded soldiers. Another interesting account might also be given of those asylums upon which extra pressure had fallen in order to receive the patients which formerly went to the vacated mental hospitals. He had an asylum which had undergone that experience. He had had to receive all the admissions of mental cases from the City of Edinburgh, in addition to those which he had previously been receiving, so that he was now taking in more than double his former admissions, and yet he had a much smaller staff with which to cope with them, both medical and nursing. He would not say any more about that, but he thought the experience which the President and others had had in the conversion of a mental hospital into a military hospital would result in our obtaining a great deal of valuable knowledge. Dr. Thomson had pointed out one or two instances in which a change had to be made in his asylum in order to convert it into a hospital, and one of the first he mentioned was the placing of handles on the doors. Handles, he (the speaker) contended, should be placed on all asylum doors; for many years his patients had complained of the unpleasantness of having to occupy rooms the doors of which had no handles. The rooms in asylums should be exactly like those in hospitals. Reference was also made to opening the windows, and that was another lesson which should be taken to heart. The profession had been talking a great deal about the importance of open-air treatment, yet one of the first things which had to be done in converting one of the most modern asylums into a hospital was to open the windows. It was anomalous that asylums should not have adopted a system of opening windows which supplied more fresh air than was provided for in the past. He had little doubt that the reason there was so much phthisis among insane people was in great measure this lack of a plentiful supply of fresh air. The arrangement in the past was that the windows should open not more than five inches. He considered that a good asylum window had not yet been invented,

and that was a thing which should be done by asylum architects, so that, while there was abundant fresh air, patients who wished to run away and injure themselves should not be able to do so. Another point he would refer to was the question of the relationship of ordinary hospital nurses to mental nurses. The President had given his experiences of the unpleasantnesses, and the same obtained at other institutions. He supposed he, the speaker, had had more experiences of hospital nurses in contact with asylum nurses than any other person in Great Britain, therefore he might be allowed to make a few observations on the matter. The reason there had been trouble was that the classes of nurses did not understand each other. When he first introduced hospital nurses into the wards of an asylum, which he did at Perth District Asylum about twenty years ago, he found it impossible to get nurses to come into the wards of an asylum. The reason he introduced them was, that Dr. Elkins, who had been appointed medical superintendent of an asylum, wished to have, as his matron, an official who had been trained in both asylum and hospital work. He advertised, and there was only one person in Great Britain who was eligible for the post, and she was already an asylum matron. He, Dr. Robertson, thought that if he could create nurses in asylums it would be a splendid opening for hospital nurses. He went to the principal hospitals in Scotland, and induced matrons to send hospital nurses to be trained. He was told it was absolutely useless to think of it, because no hospital nurse would enter the wards of an asylum—they looked down upon it. It took him from six to twelve months to induce anybody to come, and then it was owing to a series of accidents. They were with him two years, and they were all appointed matrons of asylums. After that he got hospital nurses to come to him. He found that hospital nurses did not understand the system of nursing in asylums, and at that time asylum nurses did not understand about hospitals, and there was no sympathy between them. What he had recommended was that they should know more of one another, and once they did that they would come to appreciate the good qualities in each. In Scotland there were now a large number of nurses working in asylums, and he had sent more hospital nurses into the military hospitals than all the asylums in England put together. He spoke also of the ordinary hospital system requiring any complaint of nursing to be made to the matron. At his own asylum the system was the same as that of hospitals, and he still made the nurses understand that they were to regard themselves as solely under the matron. The matron of an asylum was under the superintendent, and the latter could order the matron to do whatever he pleased. In that way the authority of the superintendent was maintained. When he found anything wrong in his asylum he never spoke to a subordinate about it, but went to the head, and got the regulation carried out through the senior authority. Hospital nurses were not now of the same standard as they were fifteen or twenty years ago. Since then there had been a large number of hospitals, especially workhouse infirmaries, which had produced trained hospital nurses on the three years' system, and the class of nurse in those workhouse infirmaries had not been the same as used to exist in the hospitals of large towns. Those large hospitals had twenty applicants on the list for every nurse they took on, hence they had a very fine class of nurse. But those nurses had now been swamped by the large number of nurses from workhouse infirmaries, who were of no better social position or education than the nurses in asylums. He felt certain that the experience of this war conversion would be of very great value to the asylum services, and after the war he hoped Colonel Thomson and others would again give their experiences, so that with them as a basis there might be a remodelling of asylums.

Sir GEORGE SAVAGE said he had not intended to take part in this discussion, for two reasons: first, that he had no practical knowledge of it, and secondly that his imperfect hearing prevented his grasping all that had been said. But a point which seemed not to have been raised was that of employing asylum staffs for the treatment of wounded soldiers. Even in Parliament, remarks were made about the iniquity of sending poor wounded soldiers into institutions intended for the insane. He had thought that sort of thing had died out. But only two days ago he received a series of cuttings and a long letter from a "Miss," requesting him to take the chair at a meeting in the provinces at which the whole of that question would be considered. His reply, of course, was that his personal experience was such that the very best was being done by the asylum staffs. And what had now

been heard from the President only convinced him of the enormous benefit which had been conferred upon the wounded men, and how necessary it was to suppress the aggressive League he had hinted at.

The PRESIDENT, in reply, said he very much appreciated the kindly and patient way in which members had listened to what, after all, was a rather dry record of a sequence of official and other events towards establishing these hospitals. He saw that it would overload his paper if he were to give matters of more purely medical interest; he was therefore very glad indeed to hear Dr. Cooke's appreciative remarks, which, coming from him, he, Dr. Thomson, valued extremely. Dr. Kidd had given very interesting particulars of his results. He, the speaker, visited Dr. Kidd's hospital, and learned a good deal there, and that was the highest praise one could give of anything. Dr. Robertson had referred to some of the Association's old controversial subjects; and it was true that while there were, as always, arguments on both sides, there would be a good deal to learn, to be assimilated and applied by the asylum administration from what one saw in hospital work now. Late though it had come in his career, his present experience would be a very valuable lesson to him and his colleagues. One had learned that some things were not as necessary as they had been thought to be. But perhaps such controversial matters would form suitable material for discussion at a later period. In answer to Sir George Savage, he was glad to hear that Sir George, as well as asylum officers, heard the adverse criticism that asylums were still receiving wounded soldiers. It was a superstition which died hard. However, they kept on working and hoping. He thanked members very much indeed.

NORTHERN AND MIDLAND DIVISION.

THE AUTUMN MEETING of the Northern and Midland Division was held at the kind invitation of Dr. T. W. McDowall, at the Northumberland County Asylum, Morpeth, on Thursday, October 7, 1915. Dr. McDowall presided.

The following ten members were present: Drs. J. W. Geddes, J. R. Gilmour, C. McDowall, T. W. McDowall, H. J. Mackenzie, J. Middlemass, B. Pierce, E. S. Simpson, J. B. Tighe, T. S. Adair, and one visitor, Dr. Mary S. Gordon.

Previous to the minutes being read, Dr. McDowall made suitable reference to the sudden and unexpected death of Dr. A. R. Douglas, of the Royal Albert Institution, Lancaster, a member of this Division of the Association, and one of its representatives on the Council. A vote of condolence with Mrs. Douglas was passed, and the Secretary was instructed to write and convey to her the sympathies of the meeting.

(1) The minutes of the last meeting were read and confirmed.

(2) Dr. J. W. Geddes was unanimously elected to fill the vacancy on the Council caused by the death of Dr. Douglas.

(3) Drs. McDowall, Pierce, and Street were unanimously re-elected to form the Divisional Committee for the next twelve months.

(4) Dr. Colin McDowall then read an interesting paper on "Nucleinate of Soda: its use in acute mental states." After describing the method of application of the drug, he gave a short account of a number of cases, of excitement and of depression, in which he had tried it. He found that in "excited, noisy cases of acute mental disturbance" it was useful in "allaying excitement and encouraging rest," but in cases suffering from depression it was of no service, and tended to be harmful.

Drs. T. W. McDOWALL, GILMOUR, PIERCE, and others discussed the subject, and gave the results of their experience.

(5) Dr. T. W. McDOWALL read a paper on "A Case of Epileptic Idiocy with Adiposity and Premature Sexual Development." The paper was one of marked interest, and was further elucidated by the exhibition of the patient, and also of a number of photographs and radiographs.

A very enjoyable meeting was brought to a close by a hearty vote of thanks to Dr. McDowall for his kind invitation and hospitality.

SOUTH-EASTERN DIVISION.

THE AUTUMN MEETING of the South-Eastern Division was held at 11, Chandos Street, on October 6th, 1915.

Among those present were Drs. F. Beach, A. H. A. Boyle, H. E. Haynes, G. H. Johnston, E. S. Pasmore, G. E. Shuttleworth, J. G. Soutar, J. Stewart, T. S. Tuke, and J. N. Sergeant (Hon. Divisional Secretary).

Expressions of regret at inability to be present were received from several members.

The meeting of the Divisional Committee was held at two o'clock.

The General Meeting was held at 2.30 p.m., Dr. Fletcher Beach in the chair.

The minutes of the last meeting, having been printed in the Journal, were taken as read and confirmed.

It was decided to arrange for the Spring Meeting to be held at 11, Chandos Street, on Friday, April 28th, 1916.

SOUTH-WESTERN DIVISION.

THE AUTUMN MEETING of the above division was held, by kind permission of Dr. MacBryan, at 17, Belmont, Bath, on Friday, October 22nd, 1915.

The following members were present: Drs. Bartlett, Norman Lavers, Nelis, MacBryan, Macdonald, Rutherford, Soutar, and Aveline, who acted as Hon. Div. Secretary.

Dr. Macdonald was voted to the Chair.

Dr. Blachford having intimated that it was quite impossible for him to undertake any outside work until after the war, and that he would be very glad to be relieved of his duties as Hon. Div. Secretary, Dr. Bartlett, Medical Superintendent of the Exeter City Asylum, was nominated in his place.

Drs. Norman Lavers and G. S. Pope were nominated as Representative Members of Council.

The following candidate was elected a member of the Association: Dr. Hamilton Marie Grigsby, L.R.C.P.S.E., etc., 79, Victoria Road, Southsea. (Proposed by Drs. Devine, Steen, and Patterson.)

It was left to the Acting Hon. Div. Secretary to fix a place for the Spring Meeting to be held on Friday, April 21st, 1916.

The question of granting medical certificates to asylum patients coming under the provisions of the National Insurance Act was then discussed by the meeting, and the suggestion that a certificate of disability on admission, and a certificate of ability, if required, on discharge (if recovered), should be all that is necessary, was approved, and it was *resolved* to forward to the secretary of the Parliamentary Committee a draft certificate, embodying these recommendations.

The Hon. Secretary was requested to convey to Dr. Morrison the sympathies of the members present, and to express their hope of his speedy recovery from his illness.

SCOTTISH DIVISION.

A MEETING of the Scottish Division of the Medico-Psychological Association was held in the Royal College of Physicians, Queen Street, Edinburgh, on November 19th, 1915.

Present: Lieut.-Col. Keay, Drs. Dods Brown, Cruickshank, Easterbrook, Kerr, McKenzie, G. M. Robertson, Ford Robertson, Watson, and R. B. Campbell (Divisional Secretary).

Lieut.-Col. KEAY occupied the Chair.

Before taking up the ordinary business of the meeting, the Chairman referred in appropriate terms to the great loss which the Association and the Specialty of Psychiatry had sustained since last meeting through the death of Sir Thomas Clouston, a distinguished physician, an authority on mental diseases, and a former President of the Association. Dr. G. M. Robertson, in endorsing the Chairman's remarks, paid a further tribute to the late Sir Thomas Clouston, and referred to the active and kindly interest which he had always taken in the affairs of the Division. It was unanimously resolved that it be recorded in the minutes that the

members of the Scottish Division of the Medico-Psychological Association desire to express their deep sense of the loss sustained through the death of Sir Thomas Clouston, and their sympathy with the members of his family in their bereavement. The Secretary was instructed to transmit an excerpt of the minute to Lady Clouston.

The minutes of the last Divisional Meeting were read and approved, and the Chairman was authorised to sign them.

Apologies were intimated from Drs. John Fraser, Carlyle Johnstone, Turnbull, Oswald, Hotchkis, Alexander, McRae, Shaw, Ross, and Crichtlow.

The Business Committee was appointed, consisting of Drs. Carlyle Johnstone, G. M. Robertson, Kerr, Orr, and the Divisional Secretary.

Drs. J. H. Orr and C. C. Easterbrook were nominated by the Division for the position of Representative Members of Council, and Dr. R. M. Campbell was nominated for the position of Divisional Secretary.

The following two candidates after ballot were admitted to membership of the Association :

(1) David Kennedy Henderson, M.D.Edin., Senior Assistant Physician, Royal Asylum, Gartnavel, Glasgow. (Proposed by Drs. Oswald, G. M. Robertson, and Campbell.)

(2) Charles James Lodge Patch, L.R.C.P. and S.Edin., Assistant Medical Officer, Renfrew District Asylum, Dykebar, Paisley. (Proposed by Drs. Hotchkis, Campbell, and Gostwyck.)

Dr. FORD ROBERTSON read an instructive and interesting paper on "Some Examples of Neurotoxic Bacterial Actions." He maintained that the part played by bacteria in the causation of disease was much more extensive than was generally believed, and that the infective agents that produced the most prevalent forms of disease were those that were more or less generally distributed, such as, for example, the pneumococcus, *Bacillus coli communis*, and *Streptococcus pyogenes*. As a means of determining the relation of common bacteria to morbid conditions in the human subject, animal experiment was of little value; the method of focal reaction and therapeutic immunisation had, on the other hand, proved capable of determining many of the questions at issue. Evidence had been collected that served to show that very many forms of mental disease were dependent upon bacterial action; the infective conditions were, for the most part, those that were commonly found in other patients; the mental disturbances were the expression of an individual reaction, consequent upon an inherent tendency to fix toxines in the cortical nerve cells. Some bacterial toxines were specially prone to exercise a neurotoxic action. Cases were cited illustrating the neurotoxic action sometimes manifested by various species of streptococcus, the bacillus of influenza, diphtheroid bacilli, and bacilli of the coli-typhoid group. In cases of mental disease the infected conditions were often complex; this fact rendered their bacteriological investigation difficult, but it did not necessarily prevent the successful application of therapeutic immunisation.

Drs. G. M. ROBERTSON and CRUICKSHANK afterwards discussed the paper.

Dr. CRUICKSHANK also read an interesting paper on "The Cholesterol Content of the Serum in Mental Diseases" (see p. 168).

A vote of thanks to the Chairman for presiding concluded the business of the meeting.

No dinner was held after the meeting.

IRISH DIVISION.

THE AUTUMN MEETING of the Irish Division was held on Thursday, November 4th, at the Royal College of Physicians, Kildare Street, Dublin.

Present: Drs. Drapes, J. A. Greene, Redington, Dawson, Lawless, Rainsford, Eustace, and Dr. Leeper (Hon. Secretary).

Dr. Drapes having been moved to the chair, the minutes of the previous meeting were read and signed.

A letter of apology for unavoidable absence was read from Dr. Oakshott, of Waterford.

A telephone message having been received from Dr. J. O'C. Donelan that he was unavoidably prevented from attending the meeting, Dr. Dawson kindly consented to introduce the discussion upon "Alcoholism and Insanity," which was the principal item of the agenda. He cited extracts from a former paper upon the subject, read by him before the Academy of Medicine, a valuable contribution to the literature of the subject, which were most opportune, more especially as little light had recently been thrown upon the particularly interesting and difficult questions which must inevitably arise during any debate upon the subject. The matters discussed in Dr. Dawson's paper were of a wide and far-reaching significance, and dealt with the scientific and eugenistic problems inseparable from the consideration of the effects of alcohol upon the human subject, together with the statistics of alcoholically produced insanity in asylums, and were of much interest.

After some remarks by the Chairman, who expressed himself as very gratified by the kindly act of Dr. Dawson in so ably introducing the discussion in the absence of Dr. J. O'C. Donelan,

Dr. RAINSFORD said that alcoholism as a cause of insanity was much overestimated. In Bristol Asylum, where he had had considerable experience, the admissions directly due to alcohol were not more than 5 *per cent.* As regards the effects of alcoholism in the parents as a cause of imbecility in the offspring, he had decided opinions. He believed alcoholism was a cause of imbecility, and more especially of imbecility associated with epilepsy as a marked condition. As regards the causation of insanity, he regarded alcoholism as playing a small rôle, and being responsible for not more than from 3 to 5 *per cent.* of the admissions to asylums.

Dr. REDINGTON drew attention to the curious fact of the small number of alcoholic patients who suffer from cirrhosis of the liver. He had had only one such case in a number of years at Portrane Asylum, and only two cirrhotic livers in alcoholic patients had been found in the Richmond Asylum during a number of years.

Dr. J. ADRIAN GREENE gave the members the benefit of his large experience of inebriates in the Ennis Inebriate Institution. Many of the cases were feeble-minded on admission, and he considered that a lengthened period of detention was necessary if any good result was to be achieved. He humorously referred to the fact mentioned by some American wiseacres that a condition of teetotalism was a more frequent forerunner of insanity than alcoholism.

Dr. EUSTACE dealt with the treatment of acute cases of alcoholic mania. He usually treated these cases by immediate deprivation of alcohol and saline enemata, together with atropine injections in suitable cases, and with in his hands excellent results, some of the patients so treated having remained well for years.

Dr. LEEPER drew the attention of the members to the fact that so many alcoholics came under treatment suffering from delusions of persecution. These distressing delusions often deterred the relatives of such patients from placing them under control until they had done much injury to their families. Legislation was urgently needed to deal with both the entrance and exit of alcoholic patients into and out of asylums or other institutions where alone alcoholics could hope for any amelioration of their condition, or where any curative treatment was possible.

The CHAIRMAN commented on the fact that statistics as regards the rôle of alcohol in the causation of insanity were contradictory and misleading. Dr. Rainsford's estimate of 3 to 5 *per cent.* as the ratio of cases due to alcoholism he considered far below the mark; and he believed that most authorities regarded 15 to 20 *per cent.* as about the true proportion. One fruitful source of error and ambiguity in determining this question was the fact that for many years in the official statistical returns from asylums only one cause of insanity was allowed to be given, whereas in probably every case the causes are multiple. Where, then, alcohol and some other cause or causes were combined, as where alcoholism and heredity coexisted—a very common occurrence—the medical man making the return had to take his choice as to which cause he would enter, and his decision was absolutely dependent on the personal equation. In recent years both principal and contributory causes are entered in the return, and it was probable that many years would have to elapse before reliable deductions could be drawn from these amended and more accurate returns. He next drew attention to the modern methods of treatment of alcoholics in America, and especially to the colony

system which, combined with watchful after-care and supervision by medical men specially appointed for the purpose, seemed to give more excellent results.

An expression of thanks to the President and Fellows of the College of Physicians for the use of the college rooms for the purpose of the meeting terminated the proceedings.

EXAMINATION FOR NURSING CERTIFICATE.

List of Successful Candidates.

FINAL, NOVEMBER, 1915.

Fort Beaufort, S. Africa.—Letitia Brandt, Janet Olive Wallace.
Brentwood, Essex.—Annie Josephine O'Donovan, Sarah Collins.
Barming Heath, Kent.—Dora Louisa Henwood, Florence List.
L.C.C., Bexley.—Beatrice Brawn, Eva Thornton, Ethel Hallam.
West Sussex.—Elsie Rose Cording.
Cheddleton, Stafford.—Ada Godber (distinction), Nellie May Bright, Matilda Sharpe Givin.
Menston, West Riding.—Amy Longstaff, Hilda Mary Marsh, Maggie Nolan.
Wakefield, West Riding.—Nellie Clayton, Alice F. Cottam, Cissie Harriet Millns.
Winson Green, Birmingham.—Edith Emma Lowe.
Cardiff City.—Lilian Emily Downes.
Hull City.—Ethel Kirkby.
Bethlem Hospital.—Elizabeth Ellen Maddick, Etta Trevethan, Ernest Charles Nind.
Coton Hill Hospital.—Amelia Lawton Cooke.
Fountains Temporary Asylum.—Priscilla Elizabeth Knott.
Camberwell House.—Mary Smith, Hilda Kemp, Olive Florence Crook, Eva May Faulk, Mary Ellen Jackson Watt.
Virginia Water, Holloway Sanatorium.—Ethel May King.
Redland, Tonbridge.—Colin Roots.
The Retreat, York.—Lily Evans, Elizabeth Alison Gracie (distinction), Dorothy Hughes, Constance Evelyn Kent.
Norfolk County.—Lilian A. Lyon, Ethel Maud Fiddaman.
Aberdeen Royal.—Mary Jane Aitken, Elizabeth Stevenson Watt, Margaret Hutchison, Margaret Milne.
Aberdeen District.—Margaret Henry Kennedy.
Craig House.—Mary A. Goodsir, Flora Macrae, Elizabeth Paton, Margaret D. McInnes, Lillie Fry, Maggie Stuart.
Murray, Perth.—Elsie A. Simpson.
Edinburgh, Royal.—Janet Macphail, Elizabeth Milne Finingham, Caroline Green Robinson, Laura Augusta Stuart Forsyth, Jessie Carmichael McArthur, Charlotte Margaret Ross, Mary May Ross, Margaret Nicol Birrell Reith.
Gartloch, Glasgow.—Jane Lyall Milne (distinction), Jane Annie Oselton, Isabella Newlands (distinction), Catherine McNiven Wynd, Jessie Sinclair, Mabel Beatrice Parfitt.
Woodilee, Glasgow.—Sarah Annie Streetley, Mary Downie, Agnes Doig Howie.
Haddington District.—Isabella Macdonald Chisholm.
Montrose Royal.—Mary Helen Matthew Coull.
Larbert, Stirling.—Alice Jane Duff, Jessie Finlay Robertson.
Edinburgh District.—Janet Adams, Alison Wright Ferguson, Susan Theresa McGarvey.
Portrane, Dublin.—Ellie McCormack.

PRELIMINARY, NOVEMBER, 1915.

Fort Beaufort, S.A.—Maggie Grant, Elvin Leslie Yorke.
Grahamstown, S.A.—Ivy Muriel Boardman, Annie Catherine Dew Rand, Katherine Philippina Terblanche, Stephanus Johannes Bosch, Frank Norman Emslie, William Davidson.

Robbin Island, S.A.—Arthur Harold Celliers Sasser, Edward Patrick Smithwick, Birdie Catherin Cocker.

Federated Malay States.—Muttu Kanapathipillai, Hilda May Joseph.

Pietermaritzburg, S.A.—Irene Ryan, Eleanor Maxwell Richardson.

Denbigh, North Wales.—Margaret Jane Jones, Annie Griffiths, Frances Myfanwy Owen, Margaret Edwards.

Kent, Barming Heath.—Eleanor Wood Griffiths, Edith Dorothy Hall, Ethel Gould, Eva Caroline Browning, Annie Mabel Franklin, Ethel Jackson Griggs, Ella Beatrice Watson, Ada Florence Wratten, Annie Mary Jones.

Fountains Temporary Asylum.—Mabel Marlow, Ethel Jakes, Dorothy Mary Cook, Jessie Macdiarmid.

Stafford.—Margaret Budd, Frances Mary Walters, Elizabeth Bill, Gertrude Jane Davis, Jessie Bradbury, Emily Spencer, Bessie Parry.

Cheddleton.—Maggie Ellen Derry, Irene Ethel Godber, Sophie Louise Gray.

Menston.—Ruth Elizabeth Marsh, Annie Baguley, Kathleen Gould, Margaret Scanlan, Susan Emily Buttler, Ethel Bailey, Isabella Young, Ethel Acton.

Wakefield.—Gertrude Wheatcroft, Charlotte Jones, Ada Roulston.

Camberwell House.—Eva W. Walter.

Claybury.—Nellie Williams.

Cardiff.—Elsie Muriel Prowse, Mary Lewis, Evelyn Valerie Joels.

Coton Hill.—Florence Louisa Wilson, Millicent Burgess, Winifred Keeling.

Derby Borough.—Lucy Griffin, Charles Henry Hester, Hannah Hill, Florence May Hutchings, Norah May Murrell, Hypatia Lilian Musty, Mabel Ida Pitt, Mary Addielade Stacey, Sarah Ellen Martha Smith, Winifred Lilian Stevenson.

Hull City.—Mary Imdda Carlin, Edward McCormick, Hilda Burgess, John Douglas Moody.

Middlesboro'.—James Cass.

Norwich City.—Mabel Elizabeth Barnes, Elizabeth Ann Holliday, Jessie Annie Holmes, Caroline Elizabeth Smith, Dorothy Lucy Waters.

St. Luke's.—Maude Florence Nicholls, Annie Flanagan, Noah Stroud, Josephine Flanagan.

Retreat, York.—Miriam Grace Brock Thompson, Aileen Dora Hume, Lucy Dorling, Dorothy Bumby.

Aberdeen, Royal.—Adam Marcus, Jean Finnie, Euphemia Glashan, Jessie Craig, Elsie Helen Cowie, Mary Dickson Taylor, Caroline Margaret Lorimer, Jane Young, Annie Hay, Isabella A. M. Shand, Flora Pirie.

Aberdeen, District.—Sarah Coull, Amy Robertson, Jane Ann Buchan, Maggie Mary Duff, Charlotte Brown Sherriff, Mary Ann Robertson, Helen Johnstone, Jeannie Agnes Rennie, Helen Ann Watt, Jane Ann Gould Connon, John Smith.

Edinburgh District.—Annie Maria Butler, Annie S. Little, Annie Redmond, Catherine Horsburgh Spiers, Marion Terris Tennant.

Craig House.—Isabella Maud Cromarty, Ruby Swanson.

Edinburgh Royal.—James Bonnyman, Herbert Smith, Gideon Ramsay, Agnes Rutherford Mawer, Mary Stalkin Farmer, William J. Fraser, Annie Fraser, Mary Ann Duncan.

Gartloch.—John Barron, William Lewis Sands, Dan Kelly, William John Ross, Christina Forbes Neill, Mary Johnston, Janet Lindsay Mitchell, Mary Scott Charlton, Annie Milne, Agness Baird Cross.

Woodilee.—Jessie Burnett Findlay, Mary Malcolm Brown Gordon, Janet P. Gordon, John Livingstone, Elizabeth Marshall, Julia Guthrie Turnbull, George Chaplin.

Inverness.—Isabella Campbell, Beatrice Elsie Montgomery, Kathleen Connolly.

Montrose Royal.—Jessie Paton, Isabella Leighton Urquhart, Mary Buick, Christina Johnson.

Murray, Perth.—Mary Jane Meldrum, Margaret Henderson.

Perth District.—William Hamilton.

Larbert, Stirling.—George Reid, Hugh McBride, Mary Kate Hart, Catherine Lavin, Isabella Black, Jean Whitelaw Philp, Mary Clark, Evyleen Cloonan.

Larbert Institution.—Jessie Murray, Maggie F. Taylor, Isobel Taylor.

St. Patrick's, Dublin.—Muriel Elizabeth McKenna, Margaret C. Nugent.

Warwick County.—Edith Annie Smith, Rose Goodall, Phyllis M. Radnor, Annie L. Mason, Agnes R. Jenkins, Amelia Patrick.

EXAMINATION FOR NURSING CERTIFICATE, NOVEMBER, 1915.

FINAL EXAMINATION.

List of Questions.

1. Describe by what means the various foods after digestion are absorbed into the system. What do you understand by assimilation?
2. How would you classify poisons? Give an example of each class. What would you do if a patient under your care were suspected of having taken poison?
3. Describe the mental symptoms of a case of confirmed epileptic insanity.
4. In what classes of patients are bedsores most likely to occur, and what steps would you take to prevent their formation?
5. Describe the mental symptoms which may be present in a case of General Paralysis of the insane.
6. Mention some of the causes which may lead a patient to attempt suicide. What precaution would you take with a patient who was known to have suicidal tendencies?
7. A patient receives a deep punctured wound in the palm of his hand; what arterial vessels might be divided, and state any difficulties that might arise in stopping the flow of blood in this situation.
8. Describe the conditions likely to be present in a patient suffering from severe varicose veins: how would you treat the case?

PRELIMINARY EXAMINATION, NOVEMBER, 1915.

List of Questions.

1. Where and by what means are the following foods digested? (1) Bread and butter. (2) Lean meat. (3) Potato. (4) Cheese.
2. A patient has tried to hang himself with a rope; what will you do if you find him hanging and apparently unconscious?
3. State the dangers and the first aid treatment when a patient (a) drinks floor polish composed of turpentine and wax, and (b) receives a sting in the mouth from a wasp.
4. Give a description of the structure of the skin and state its functions.
5. Why are (1) Regular bathing, and (2) Exercise, necessary for good health?
6. Mention the methods of artificial respiration and describe the one most commonly employed.
7. Describe the varieties of fractures and the principles in treatment.
8. What varieties of unconsciousness simulate drunkenness, and how are they distinguished?

RESOLUTIONS RE NURSING EXAMINATIONS.

"(1) That no candidate be excused the Nursing Examination or any part of it, on any ground whatever."

"(2) That those male or female nurses who have served during the present war in either the Navy or Army be excused all the items of training mentioned in paragraph (8) of the training regulations except (a) requiring twelve months' attendance on the insane."

"(3) That, in the case of any male or female nurse who by reason of war service has been prevented from sitting for the Preliminary Examination, the statutory interval between the two examinations be not insisted upon, provided the three years' service in an Asylum be not shortened."

The above resolutions were confirmed at the February meeting of the Association. December, 1915.

ALFRED MILLER, Registrar.

OBITUARY.

DR. EDWARD DANIEL O'NEILL.

By the death on January 12th of Dr. Edward Daniel O'Neill the Asylum Service of Ireland has lost one of its most capable administrators. His symptoms did not appear to be of serious import until a comparatively short time before his demise. His health, however, had been a good deal impaired for some time past, and he suffered more or less from chronic insomnia and gouty attacks. He was sixty-three years of age, and had been for twenty-six years in charge of the Limerick District Asylum, in which capacity he had won the confidence and esteem of his Committee of Management, of the Inspectors, and of the public generally. His medical education he obtained in the Carmichael School of Medicine in Dublin, where he took the diplomas of L.R.C.S. (1872), L.R.C.P. (1878), and M.R.C.P.I. (1884). He was for five years (1881-1886) Assistant Medical Officer at the Richmond Asylum, Dublin, and from there was promoted to be Medical Superintendent of Castlebar Asylum, where he remained for four years, and in 1890 he succeeded in obtaining the similar but more important post in Limerick Asylum. Dr. O'Neill took a warm interest in the welfare of his patients, whom he treated with invariable kindness and consideration. His courtesy towards all with whom he had to do will be a grateful reminiscence in the minds of many. He was a representative member of the Council of the Association, and attended the Quarterly Meeting in London in November last. His too early removal has occasioned the deepest regret to his colleagues in Ireland, and indeed to everyone who had the pleasure of knowing and appreciating his genial personality.

LIEUTENANT EDGAR FAULKS, R.A.M.C.

The speciality has sustained a loss by the death of Lieutenant Edgar Faulks, R.A.M.C., late Senior Assistant Medical Officer of the London County Asylum, Bexley, which took place on September 26th last whilst he was dressing a wounded man in the fighting line near Loos in France.

Dr. Faulks, who was the son of Mr. and Mrs. Arthur Faulks, of Loughborough, Leicestershire, was 38 years of age, and received his medical education at Guy's Hospital, where he held a number of resident appointments, and during which time he was President of the Residents' Club. He was appointed Junior Assistant Medical Officer at Bexley, and during eleven years' service there he steadily rose, and was for the latter five years Senior Assistant Medical Officer. He was a very keen student, and took a deep interest in all new developments in the treatment, care, and housing of the insane. He was a very able clinician, and his opinion, owing to his well-balanced judgment, was always much sought by his colleagues. He had a very delightful personality, and entered very fully into the life of the Institution.

A special Memorial Service was held in the Asylum Church on the Sunday following the news of his death. Beloved alike by his colleagues and by the patients and staff, the death of Dr. Edward Faulks has left to all who knew him a deep sense of personal bereavement.

CORRESPONDENCE.

To the President and the Members of the "Medico-Psychological Association."

GENTLEMEN,—I take the liberty of soliciting your kind support in the interests of juvenile defectives in Belgium, and more especially in the Province of Brabant. This question was in a fair way of being solved at the time of the outbreak of the war, and the provincial authorities of Brabant had decided to erect an institution for the "feeble-minded" at Waterloo. The construction of this establishment had begun when the war broke out, and all the operations were stopped.

It is to be feared, and news from Belgium confirm this apprehension, that the heavy expenses that our country will ultimately have to meet will be a pretext for

abandoning a number of works and reforms which up till the eve of the war were thought to be absolutely indispensable. It is evident that we shall have urgent duties to discharge towards our compatriots who are victims of the war, and especially as regards our orphans and cripples. But, are we on that account to give up the sick and infirm, the old, the insane, and abnormal. To put the question is to solve it. We could not consent to such a retrograde course of action, resigning ourselves to a barbarism almost as horrible as that which our unscrupulous enemies have inaugurated during this war. Philanthropists and savants who have interested themselves in "abnormal childhood" in all civilised countries will lend an ear to the appeal which I am making now in favour of the abnormals in Belgium, and after reading these few lines will promise help and advice to the Belgians who have taken an especial interest in this subject, and will direct their thoughts in particular to the very interesting work in the Province of Brabant.

I hope to interest such persons by rapidly enumerating the efforts which have been made in Belgium to help "deficient children." It was about the year 1868 that the movement in favour of defectives started. At that time a regular medico-educational campaign in primary instruction began in the town of Brussels, in favour of the separation of deficient from normal pupils. Later on classes, and a school of special instruction were instituted. Soon afterwards the town of Antwerp followed suit. And since then these schools and classes have proved a very fruitful field of work for doctors and teachers. A few years later the town of Gand started a wonderful school of instruction for the weak-minded, and towards 1912 and 1913 the town of Liège, in its turn, took up the study of this question. Thanks to these special schools and classes some new educational methods have been discovered, which, in their turn, proved of value even in the case of normal children. Since 1906 doctors and teachers in Brussels applied themselves to estimating the mental capacity of the scholars with the help of the tests methods of De Sanctis and Binet. During this time the Society for the Protection of Abnormal Childhood in Belgium continued its unwearied propagandist efforts. It addressed itself to the communal, provincial, and governmental authorities without being discouraged by the numerous rebuffs to which it had to submit, due to ignorance of the importance of the subject. But, thanks to its repeated efforts, the said Society succeeded in giving effect to its views. In the new law dealing with juvenile crime the existence of abnormal children was noted, and the attention of judges was especially called thereto.

In 1901, the Society for the Protection of Abnormal Childhood presented a plan of a "farm-school" to the Society of Martyr Children. But it was not till 1909 that this project was restarted, and this time submitted to the provincial authorities of Brabant. The latter agreed to establish a "farm-school" at Waterloo. The plans were completed in 1913, and the erection of an institution for 240 defectives was commenced in 1914. The war stopped all work. The institution, when completed, was to comprise four pavilions on separate floors, a farm, a laundry, a kitchen, offices of administration, workshops, a gymnasium, a lazaretto, and an infirmary; and land to the extent of 15 hectares (about 2½ acres) was reserved for cultivation. During this time the Province of Brabant instituted a temporary course for the instructors desirous of specialising in the subject. The courses were inaugurated in January, 1914, and came to an end some weeks before the war. The examinations were to have taken place in October, 1914.

The Province of Brabant, moreover, provided a special subsidy to be given to each communal or free school for the maintenance of classes for giving instruction to backward or deficient children. And the complete and harmonious development of a system of aid for children mentally afflicted was anticipated.

For the sake of those dour souls who repeatedly tell us that more is done for the abnormal than for the normal, we must add that the Province of Brabant encourages professional teaching, and that it has instituted schools for teachers in baking and carpentry, in agriculture and horticulture, normal schools for teachers, etc. That is to say, the resources of the leading province of Belgium were devoted to works which were the most useful to the nation and to humanity.

All these excellent plans are upset. The Belgian provinces and communes are systematically ruined by an unscrupulous enemy, who has levied taxes as exorbitant as they are illegal (500 million francs), and who at the same time has requisitioned, without paying for them, a quantity of things, stores, machinery, and

alimentary substances. Belgium will then be without any resources whatever after the war. Assuredly, the enemy who has pillaged and stolen will have to make restitution. But even if he wanted to, he would be incapable of doing so, seeing that he will have consumed an enormous proportion of what he has taken.

Our hope of "Justice," however, so slow in coming, still remains unshaken. Justice *must* be done, and completely, too. But in the presence of the material ruin of our splendid Flemish and Walloon cities we must not forget our social ruin. Are we going to allow the hygienic, educational, and social works of the finest of our Belgian provinces to perish—Hainault, Brabant, and Liège? Are we going to leave in jeopardy the works of our great cities? This is impossible, for after the war they will be more useful than ever. The splendid school for cripples at Charleroi and the one at Brabant, will they not need to be indefinitely extended in consequence of the war? Will it not be the same with respect to the insane and the feeble-minded?

Besides, is it not the duty of all savants and philanthropists to think about these objects? The favoured ones of fortune whom the war has not only spared, but who have even, thanks to it, found their means increasing, do these not think it their duty to humanity to spend a portion of their revenues on these social schemes in Belgium? Wherever they may be, may their consciences tell these privileged persons, the rich ones, that they cannot enjoy their wealth without remorse, if they have not helped and if they do not continue to give unflagging help to a nation which has been the victim of its own loyalty! Wherever they may be, let learned men also give voice to their conscience and their heart, and claim it as an honour to support these Belgian scientific and social objects both by word and writing. May psychologists, interested in deficient children, be willing to reply to my appeal, and give their support to the efforts being made in the interests of the mentally deficient, and more especially those in connection with the "Farm School" of Waterloo.

I beg to thank, as much in the name of the Society for the Protection of Feeble-minded Children in Belgium as in my own name, the "Medico-Psychological Association of Great Britain" if they will accord a favourable reception to this appeal.

M. F. BOULENGER, M.D.Brussels,
Member of the Office of the Society for the Protection of
Abnormal Childhood in Belgium.

Darenth Industrial Colony,
Dartford, Kent,
England.

NOTICES BY THE REGISTRAR.

Nursing Examinations.

Preliminary Monday, May 1st.

Final Monday, May 8th.

Professional Examination Certificate in Psychological Medicine and Gaskell Prize, first week in July.

Essays for Bronze Medal must be sent to Registrar on or before June 14th.

NOTICES OF MEETINGS.

The next General Meeting will be held at 11, Chandos Street, Cavendish Square, W., on Thursday, February 17th, when a paper will be read by George M. Robertson, M.D., F.R.C.P.Edin., on "The Employment of Female Nurses in the Male Wards of Mental Hospitals."

Quarterly Meetings: February 17th, 1916; May 16th, 1916.

The Divisional Meetings are proposed as follows:

South-Eastern Division.—April 28th, 1916.

South-Western Division.—April 21st, 1916.

Northern and Midland Division.—April 27th, 1916.

Scottish Division.—March 17th, 1916.

Irish Division.—April 6th, 1916; July 6th, 1916.

APPOINTMENTS.

Drummond, W. B., M.B., C.M.Edin., Medical Superintendent of Baldovan Certified Institution for the Treatment and Education of the Feeble-minded, Dundee.

Peachell, George Ernest, M.D., C.M., M.R.C.S., L.R.C.P.Lond., Medical Superintendent of the Dorset County Asylum, Dorchester.

N.B.—The Editors will be glad to receive contributions of interest, clinical records, etc., from any members who can find time to write (whether these have been read at meetings or not), for publication in the April number of the Journal. They will also feel obliged if contributors will send in their papers in good time, if possible.

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VOL. LXII.

Part I.—Original Articles.

ON CAUSATION WITH A CHAPTER ON BELIEF

BY

CHARLES A. MERCIER, M.D., F.R.C.P., F.R.C.S.

(Continued from p. 108.)

III. SIMILARITY.

Unquestionably the most usual and frequent ground for assuming a causal relation which is not immediately apparent is the similarity of the case in hand to other cases in which the causation has been ascertained. As it is the most frequent, so it is the most direct application of the fundamental Axiom of Causation, that *Like causes in like conditions produce like effects*, from which we obtain, by a logical process that is unknown to logicians, the immediate inference that *Like effects in like conditions are due to like causes*. It is by the application of this method not only that causation is most often established, but also that some of the most important discoveries of causes in the various sciences have been made. It is in perpetual use, both in the most recondite problems of science, and in the commonest affairs of daily life.

It is asserted in nearly every book on Logic that the planet

VOL. LXII.

16

Neptune was discovered by Mill's Method of Residues. The planet Neptune was not discovered by the Method of Residues. The very descriptions of the discovery that are given to show that it was discovered by the Method of Residues show that it was not discovered by the Method of Residues, and the same is true of every other instance in which the books assert that a cause has been discovered by this method. No cause of anything has ever yet been discovered by the Method of Residues, and it is extremely unlikely that any cause of anything ever will be discovered by it. What was discovered by the Method of Residues was that there were certain movements of the planet Uranus that were not accounted for by known causes. The Method of Residues did not discover the cause, nor point to the cause. All it discovered, and all it pointed to, was that there was something for which an additional cause was required. The additional cause was discovered by the Method of Similarity. It was found by applying the Axiom *Like effects in like conditions are due to like causes*. After all the perturbations of Uranus that are due to the attraction of known planets had been reckoned, it was found that there was a residue of perturbation unaccounted for; and this led astronomers to guess that there must be some other cause of perturbation, yet unknown, and to look for it. The astronomer said 'This residual effect must be due to some extra cause that I have not reckoned on. But though it is a new effect, it is not a new kind of effect. I am familiar with perturbations of planets, and I know how they are produced. They are produced by the attraction of other planets. Now, *Like effects in like conditions are produced by like causes*; therefore this perturbation must be due to the attraction of some undiscovered planet, and I must proceed to discover it. In order to produce this effect, the causal agent must have been in a certain place at a certain time.' Then he investigates, and finds that at that time Neptune was in that place.

Precisely the same method is employed by the cook when she finds herself short of a pot of jam. This also is a residual phenomenon. After accounting by known causes for the absence of most of her jam, she finds there is a residue of loss that cannot be so accounted for. This is all she can learn from the Method of Residues. She learns from it that there is something for which a cause is required. She then sets to work to discover the cause. She says 'This loss must be produced

by some cause that I have not reckoned on ; but though it is a new effect, it is not a new kind of effect. I am familiar with the abstraction of pots of jam from my cupboard, and I know how it is produced. It is produced by the action of human hands. Now, *Like effects in like conditions are produced by like causes* ; therefore the abstraction of this pot must be due to the hands of some undiscovered person. In order to produce this effect, the causal agent must have been in a certain place at a certain time.' Then she investigates, and finds that at that time the page-boy was in that place.

It is the same with every other application of the Method of Residues. What is found by it is not the cause of anything, but something unaccounted for, something requiring explanation, something for which a cause must be found ; but in finding the cause the Method of Residues is never employed, and would be useless if it were employed. The cause is found by one of the methods here described, and very often by the Method of Similarity.

When physicians desired to know the cause of yellow fever, did they proceed by the Method of Agreement, or the Method of Difference, or the Joint Method of Agreement and Difference, or the Method of Concomitant Variation, or the Method of Residues ? They did not. They were not so foolish. The way they went to work was to assume that the cause of this disease is like the cause of a similar disease occurring in similar conditions. There is no disease exactly like yellow fever : such a disease would be yellow fever itself ; but there is a disease, ague, which is like enough to yellow fever for the purpose of the argument ; and the cause of ague is known. Ague is caused by the injection, by the bite of a mosquito, of a parasite into the blood ; therefore, it was argued, on the ground of the Axiom of Causation, that yellow fever also is caused by the bite of a mosquito ; and suitable investigations being made, the conclusion was verified in this case and in that. But it was not verified in every case, and it cannot be verified in every case. In the cases that now come under care, we do not and cannot satisfy ourselves by observation or experiment that they have been caused by the bites of mosquitoes ; but for all that we do not doubt for a moment that they have been so caused. What, then, gives us our assurance ? The same variant of the Axiom of Causation, that *Like effects in like conditions are due to like causes*.

When a chemist wishes to determine whether lead is present in certain water, he applies certain reagents ; and if he obtains certain results, he concludes at once that lead is present ; and so sure is he, that he is prepared to go into a court of law and swear to it. By what method has he ascertained that the cause of the reactions that he obtained was the action of lead in the water ? By the same method that leads the cook to conclude that the disappearance of her jam was due to the action of the page. The chemist knows that on every previous occasion on which he or anyone else has ever tried it, lead has had this effect, and nothing else has ; and he assumes at once that since the effect and the conditions are similar, the cause is similar.

When the photographer finds that directly he pours his developer on the plate, the image flashes up, he knows that the plate has been grossly over-exposed ; and he discovers the cause of this effect by the Method of Similarity. The effect is like the effect that has in like conditions been produced by a certain cause ; therefore, he concludes, the cause in this instance is like the cause in that. Is his plate fogged ? Then he concludes that diffused light has fallen on it, and his reason is the same. Is his result brilliant ? Then he determines that on future occasions he will repeat the conditions as closely as possible ; and is confident that the more closely he can get them like the conditions in this case, the more closely similar will be the result.

When the horticulturist finds his tomatoes suffering from disease displaying certain symptoms, does he apply any of Mill's Canons ? Not if he knows his business. He looks round for similar diseases in similar plants, confident that if he finds such a disease, and the cause of it is known, he may assume a similar cause for the disease of his tomatoes. He has not far to look. On his potatoes, plants belonging to the same natural order as the tomato, he finds a very similar disease ; and he knows that this potato disease is due to a fungus of a certain kind. He concludes at once that the disease of his tomatoes is due to a fungus, and to a similar fungus ; and more, he concludes that whatever treatment effectually cures the disease of his potatoes is likely to relieve the disease of his tomatoes. He does not look for two or more instances which have nothing in common but the occurrence of the phenomenon, and two or more instances which have

nothing in common but the absence of the phenomenon : he looks for a single instance as like as possible ; and having found an instance that is like enough for the purpose of the argument, he looks no further, for he knows that *Like effects in like conditions are due to like causes.*

A remarkable instance of the application of this method has recently divided with the war itself the interest of this country. Four women in four different parts of the country were found drowned in baths under conditions that were closely similar ; and the similar conditions were not only closely similar, but were numerous. In each case the woman was recently married ; in each case she either possessed money or her life had been recently insured ; in each case she had made a will in favour of her husband ; in each case the husband reported the death on his return from going out to buy food ; in each case the woman had been said by the husband to have fits, though she was not otherwise known to have them ; in each case the funeral was hurried, and was carried out as cheaply as possible. Such closely similar effects in such numerous closely similar conditions pointed conclusively to closely similar causes and closely similar agents. When it was discovered that in all the cases the husband was the same man, the similarity became merged in identity. This one circumstance was antecedent in every case, and was the only common antecedent ; and it was impossible to doubt that he was the agent that had produced all the effects. But the Method of Similarity, though by itself it was sufficient, was not the only method employed in discovering the agent. The sixth method also, the Method of Common Rarity, was employed. It is, in fact, not usual for the discovery of a cause or of an agent to be made by the employment of one method only ; and here we may give an anticipatory instance of the Method of Common Rarity. Death in a bath is rare. Death in a bath of a newly married woman, under all the conditions enumerated, is extraordinarily rare. The rarity of the effect pointed in each case to a cause equally rare ; the common rarity of all the effects pointed not merely to rarity, but to actual uniqueness of the cause and of the agent. In all the cases there was but one common factor that alone could possibly be the agent, and this was the husband ; who was accordingly charged with murder, tried, convicted, and executed.

Instances of the application of the Method of Similarity

might be multiplied indefinitely. It is the ordinary common method of discovering those causes that are not forced upon our attention by the Method of Instant Sequence; it is used by everyone many times every day, and is more frequently employed in scientific investigations than any other method; but logicians, though in common with other people they are constantly using it, have never described it, and never discovered it.

IV. ASSOCIATION.

The mere association between an action upon a thing and a following change or accompanying unchange in that thing points to a causal connection between the action and the effect, and is often taken to establish the causal connection. It does not necessarily establish the connection, but in certain circumstances it may do so, and our task is to discover and state these circumstances.

This is the method so clumsily expressed, and so erroneously expressed, by the first three of Mill's Canons, which we may now examine. The first thing that strikes us upon reading them is the extraordinary cumbrousness, the elephantine ponderosity, of their expression. A statement is not necessarily erroneous because it is badly expressed; but cumbrous and awkward expression is a sign of confusion of thought; and when we find such portentous circumlocution as these Canons display, we may be quite sure that the writer is trying to convey some thought that he has not thoroughly worked out; that it is certainly no more than an approximation to the truth; and that it is very likely to be erroneous. Elegance of expression is no guarantee of accuracy, but it is an indication of care; and clumsiness of expression is an almost certain sign of confusion and want of thoroughness in thought.

The first of the Canons runs: 'If two or more instances of the phenomenon under investigation have only one circumstance in common, the circumstance in which alone all the instances agree [why not 'this circumstance' ?] is the cause (or the effect) of the phenomenon.'

Apply this to a concrete case, and let the 'phenomenon under investigation' be green colour. Two or more instances of green colour (a bucket, an armchair, and a pool ball) have only one circumstance (that they are green) in common; this circumstance is the cause (or the effect) of the green colour.

So obvious is this booby-trap that some of Mill's followers have noticed it, and have modified the Canon so that it reads 'have only one *other* circumstance in common.' Let us see how the amendment works out in practice, and let the 'phenomenon' still be green colour.

If two or more instances (a bucket, an armchair, and a pool ball) of the phenomenon under investigation (green colour) have only one other circumstance (that they are in the same house) in common, this circumstance (being in the same house) is the cause (or the effect) of the green colour.

Of course, according to my nomenclature, the green colour of these objects, since it is neither a change nor an unchange, is not an effect but a result; but it is certainly a phenomenon, and according to Mill's nomenclature it is an effect; and out of his own mouth must he be judged. If he had recognised that an effect means a change or an unchange, and that a cause means an action, and had expressed his Canon accordingly, it would have at least been true, though even then it would not have been much use. It would then have run as follows:—

If two or more instances of an effect are preceded or accompanied by only one mode of action on the thing changed or unchanged, that mode of action is the cause of the effect in each case.

This of course would be true, but when was there ever such an effect? Events in this world are not thus isolated, and we have no experience, and are never likely to have any experience, of an effect that is preceded or accompanied by one action and no more on the thing in which the effect is produced.

Mill's second Canon runs thus:—'If an instance in which the phenomenon under investigation occurs, and an instance in which it does not occur, have every circumstance in common save one, that one occurring only in the former; the circumstance in which alone the two instances differ, is the effect, or the cause, or an indispensable part of the cause, of the phenomenon.'

Again let us clothe these dry bones in flesh and skin, and let the phenomenon still be green colour. If an instance (a pool ball) in which the phenomenon under investigation (green colour) occurs, and an instance (another pool ball) in which it does not occur, have every circumstance in common save one (touching the cushion) that one occurring only in the former; the circumstance (touching the cushion) in which alone the

two instances differ, is the cause, or the effect, or an indispensable part of the cause of the phenomenon (the green colour).

In terms of action and effect, this Canon would run as follows:—‘If an action and an effect in the thing acted on are associated both in presence and in absence, everything else being the same, the action is the cause of the effect.’ This of course is true, but in practice the Canon, even in this form, is of no value, for everything else never is the same. In order to give it any value the Canon should run:—‘every other material circumstance remaining the same.’ In this form the Canon is true, and is valuable, but it is a very different Canon from Mill’s.

Mill calls his third Canon the Joint Method of Agreement and Difference, and puts it thus:—

‘If two or more instances in which the phenomenon occurs have only one circumstance in common, while two or more instances in which it does not occur have nothing in common save the absence of that circumstance; the circumstance in which alone the two sets of instances differ is the effect, or the cause, or an indispensable part of the cause, of the phenomenon.’

In a concrete instance, If two or more instances (say a blade of grass, a garden seat, and a park gate) in which the phenomenon (green colour) occurs have only one circumstance (that they are out of doors) in common, while two or more instances (say a reel of cotton and a frying-pan) in which it does not occur have nothing in common save the absence of this circumstance (being out of doors) the circumstance (being out of doors) in which alone the two sets of instances differ is the cause, or the effect, or an indispensable part of the cause, of the phenomenon.

The qualifications of this Canon are grotesque. When were there ever two instances of any ‘phenomenon’ that had only one circumstance in common? It is impossible to find such instances, and impossible to imagine such instances. The supposition is outrageous. If the ‘phenomenon’ is a material thing, or a change in a material thing, the instances must have at least the common circumstance that they are all subject to the action of gravity. If the ‘phenomenon’ is a mental state or a mental change, the instances must have at least in common the circumstance that they are in some mind or other. And

how is it possible to find two other instances that have nothing in common but the absence of the 'phenomenon'? Instances of what? Of the 'phenomenon'? No, for that is to be absent. Of the 'circumstance', then? No, for that also is to be absent. And these instances of nothing are to have nothing in common but the absence of the 'circumstance', yet they are to have also in common the absence of the 'phenomenon'! Was there ever such a farrago or nonsense? And yet this precious Canon was not only gravely stated by Mill, but has been gravely accepted by every writer of his school ever since, and in seventy years not one of them has discovered its tomfoolery; nor has even any one of his critics, and they are numerous enough, discovered its tomfoolery. Had its author been anyone else, I should have suspected him of perpetrating a huge joke, and laying an elaborate trap for his worshippers; but Mill was as destitute of humour as Herbert Spencer himself, so that hypothesis will not stand. No. The only explanation is that Mill, and everyone else who has accepted or criticised the Canons, have had their minds so bemused and bemuddled by the study of Traditional Logic, that they are no longer capable of distinguishing sense from nonsense.

As with the previous Canons, I have tried to make sense of this by translating the terms 'circumstance' and 'phenomenon' into action and effect, but no such amendment, and no amendment of any kind, can make sense of it. Its ineptitude is hopeless and incurable, enormous and incredible; and no tinkering or patching can amend it.

Preposterous as these Canons are, both in sense and in expression, they are nevertheless blind gropings after a meaning that is both true and valuable; that is to say, that there are circumstances in which the association of an action on a thing and an effect in that thing indicate a causal connection between the action and the effect, and that these circumstances may be formulated. We have already seen that this is true in one set of cases—in those cases in which the effect is associated in instant sequence with the action—and have now to show what other cases there are. It must first be insisted that the mere association of an action on a thing with an effect in that thing does not necessarily imply causation. The sun may shine on a house when it falls down; or on a river when it overflows; the birds may be singing in the hearing of two pugilists; the train may be late when the rain is falling on it;

the wind may be blowing on the corn when it is falling in swathes; all these actions may be associated in time with effects in the things acted on, and yet the association does not justify us in concluding that the action is the cause of the effect. Nor can we draw this conclusion from an association in space. Grooming the horse is not the cause of its casting its shoe; painting the gate is not the cause of its being out of plumb; putting the kettle on the fire is not the cause of the fire burning up, or of the kettle being full; crossing the swing bridge is not the cause of its opening.

Yet there are cases in which we may properly argue from association to causation, and it is important to distinguish the cases in which we are warranted in so arguing from those in which we are not. There are four such cases, that is to say—

Causal connection between an action on a thing and an effect in that thing may safely be argued from their association

- A. When other material action can be excluded;
- B. When the association is of proved constancy;
- C. When, though inconstant, the association is more frequent than casual concurrence will account for;
- D. When, though itself inconstant, the associated effect has constant peculiarities.

A. If a certain action on a thing is associated with a certain effect in that thing, and all other material action can be excluded, then that action is the cause of that effect.

This is indubitable. It needs no proof. It is axiomatic; and the method is unassailably valid whenever it can be employed; but the occasions on which it can be employed are restricted. Of course, if it were necessary to exclude all other action, the method could never be employed at all, since such exclusion is impossible. In material things, for instance, it would often be impossible to exclude the pressure of the air, and always impossible to exclude the action of gravity. But there are few cases in which causation needs to be investigated and in which these actions are material. A greater difficulty is to know what actions are material to the effect and what are not: and even if we do know this, it may be difficult to exclude all the material actions but one; and often there may be a material action at work of which we know nothing. If we suspect an action of being the cause, and can isolate it, the method is easy, and the result, positive or negative, is certain;

but in many cases in which we have to depend on the method of association the inquiry is a fishing one. There may be no single action that can be plausibly suspected, and the number of actions that may, for aught we know, be material, may be indefinitely great. Take the case, for instance, of a disease. It occurs among men and women whose course of life brings upon them the action of innumerable agents, some of which we know; some of which, without knowing, we suspect; and many others of which we are altogether ignorant, and of whose very existence we entertain no suspicion. Yet any of these may, for aught we know, be material. In such a case it is inevitable that the method of association, employed loosely and without rigour, as it always is at first, should lead us astray. In such cases we are apt to choose, pretty much at random, an action or an agent that may or may not exist, and assign to this action or agent, real or imaginary, a causal influence. We assign the causation of disease, or of a disease, to the planets; to the air; to some food, or ingredient in food, such as purin; to some drink, or ingredient in drink, such as port wine; to anything in the heavens above, or in the earth beneath, or in the waters under the earth. These are mere random speculations; it is not until we submit our speculation to the test of one of the twelve methods here described that any reasonable assignment of cause begins; and the method that first suggests itself is usually the method of association. The first step towards accuracy is made when we establish an association in time or space between the agent or action that we have tentatively fixed upon and the effect or result whose cause we are seeking.

It is not enough, however, to establish an association in time or space between them, for, in such an effect as disease, innumerable actions on the body of the patient are associated with the disease. It is necessary to pick out one particular action, and prove that it is associated with the disease in one of the four ways that have been enumerated above; and the most obviously conclusive association is that now under consideration, *viz.*, association in isolation; that is to say:—

If, in given conditions, other material things remaining the same, the addition alone of an action is attended by an effect, or the withdrawal alone of an action is attended by the disappearance of an effect, that action is the cause of that effect in those conditions. The obverse also is true:—

If, in certain conditions, other material things remaining the same, the addition of an action is not attended by an effect, or the withdrawal of an action is not attended by the disappearance of an effect, that action is not the cause of that effect in those conditions. Both these maxims are easily derivable from the Axiom of Causation.

Unlike Mill's so-called Experimental Methods, these methods are almost of necessity experimental. The isolated addition or withdrawal of an action does not often take place unless it is artificially produced. If, however, the action can be isolated, and added or withdrawn without disturbing other material actions or conditions, then a single instance is all that is necessary to establish causation, not only for that instance, but generally for all cases that are similar in material respects.

Is the pressure of the air the cause of the maintenance of the mercury in a Torricellian barometer? If we place the barometer in a chamber, and exhaust the air from that chamber, we can determine the question with certainty, for by so doing we withdraw the single action of the air-pressure, and leave all other material actions and conditions unaltered.

What is the cause of the baby's crying? Is a pin pricking it? The nurse undresses the baby and finds a pin in such a position that it may perhaps have pricked the baby. She removes the pin, and the crying ceases. Was the pricking of the pin the cause of the crying? We cannot be sure. We are not sure that there was any such action on the baby as we supposed, and therefore cannot be sure that any such action was withdrawn. Nor can we be sure that other material things have remained the same. In undressing the baby some other source of pain or discomfort may have been removed.

What is the cause of this cutting in my greenhouse wilting? Is it drought? I water it, and after the lapse of an hour I can discern no difference: the cause is not drought, therefore. Is it the scorching of the sun? I move it into the shade, and in due time it recovers. There is little doubt the cause was scorching; but in moving it, I may have altered other conditions. If, however, instead of moving it, I screen it from the sun, and find that it recovers, I can have no doubt that scorching was the cause.

A certain milk or water supply is suspected of being the cause of an epidemic of disease. If, upon cutting off that supply, the epidemic ceases to extend, the suspicion is con-

firmed. If the spread of the epidemic is unaffected, the suspicion is removed. In this case the conditions are complex, and it is difficult to be sure that all other material circumstances remain the same. Even if the suspected supply is the cause of the disease, the epidemic may still spread after the supply is cut off, for persons who were infected before the supply ceased may not exhibit the disease until a week or a fortnight afterwards. Again, suspicion of the supply may lead many people not to use it, or to boil the milk or the water before using it, and in such a case other material circumstances will not be the same, and again the effect will be obscured. If, however, the conditions of the test can be observed, and are observed, then the test is infallible.

Is the fogging of the photographic plates due to leakage of light into the camera? Expose the next plates in another camera, and observe the result. If they are not fogged, the fault is probably in the camera, but it is not certainly so unless we can be sure that all the other operations were carried out in the same conditions. If the plates are still fogged, the fault is probably not in the camera, but this is not certain, for the second camera also may not be light tight. The method requires care and strictness in its application, but, properly applied, it is thoroughly trustworthy.

Is the discontent in the regiment due to the incompetence or lack of judgement in the colonel? Remove the colonel, and see if it subsides. In this case, again, there are sources of fallacy. A regiment that has once got out of hand cannot be restored to discipline in a day, or a week. The evil that men do lives after them; and it may be that no ordinary man, and no ordinary measures, will cure the regimental defect. Even in so simple a matter as altering the pendulum of a clock we may be deceived, unless we take precautions to observe that all other things remain the same. It may be that the very day we lengthen the pendulum a severe frost sets in and counteracts our action by shortening it. In short, the sources of error in the application of this method are numerous, and are often difficult to guard against; but none the less is the method perfectly efficient if we can and do eliminate errors in its application.

By these instances we may see that the method requires great care in its application; that it is often difficult, and often even impossible to isolate the action, and to be sure that in

adding or withdrawing it, no other material action has been added or withdrawn; nevertheless these instances also show that when the method can be employed, and when it is employed with care, it yields results which are perfectly trustworthy.

B. When the association of an action with an effect, though not isolable, is yet of proved constancy, causal connection between the action and the effect may be presumed. By proved constancy is meant constancy without exception in cases that are numerous and diverse.

Constant association between an action and an effect may be association in presence, that is to say, that if one is present the other also is present; or it may be association in absence, that is to say, that if one is absent the other also is absent. In practice these amount to the same thing.

Constant association in presence may mean that whenever in given conditions the action occurs, the effect occurs; which is the same thing as saying that whenever the effect is absent the action is absent. In this case, the more numerous and diverse the instances in which the association is observed, the more surely we may presume that the action is a cause of the effect; but we have no reason to assume that it is the sole cause.

Or it may mean that whenever in given conditions the effect is present, the action is present; which is the same as saying that whenever the action is absent the effect is absent. In this case, the more numerous and diverse the instances, the more surely we may presume that the action is the sole cause of the effect.

The removal of a queen bee from the hive is always followed by the rearing of a new queen by the bees; and this association has been so frequently observed without any exception, that we may now confidently presume that the removal of the queen is a cause of a new queen being reared. We may not, however, presume on the ground of this association, constant though it is, that the removal of the queen is the sole cause of a new queen being reared; and in fact bees at a certain time of year will always rear new queens, even if the old queen remains. A severe frost when fruit trees are in flower is always followed by failure of the crop, and the association is so constant that we may conclusively presume that the frost is a cause of the failure. We may not, however, presume from this mode of constant association that frost is the only cause of failure of

the crop, and in fact it is well known that it may fail from other causes. The warrant for the presumption, and the justice of it, are so manifest that no further illustrations are needed.

If the effect never occurs unless the action occurs, this mode of constancy in association warrants us in concluding, and if the cases are numerous and diverse compels us to conclude, not merely that the action is a cause of the effect, but that it is the sole cause. A watch never goes unless it is wound: we are compelled to conclude that the winding is the sole cause of the going. Eggs never hatch unless they are incubated: we are compelled to conclude that incubation is the cause, and the sole cause, of the hatching. This man is never quarrelsome unless he is drunk: we are justified in concluding, and compelled to conclude, that his drinking is the sole cause of his quarrelsomeness. Certain flowers are never fertilised unless they are visited by insects: we are justified in concluding, and compelled to conclude, that the visits of insects are the sole cause of fertilisation. Cancer of a certain kind is never found except among chimney-sweeps; chimney sweeping is the sole cause of that kind of cancer. Instances could be added in indefinite numbers. It is important to appreciate that the constancy of association is quite a sufficient warrant for concluding causation, even though we may not know, and may not be able to surmise, how the effect is brought about by the action, or what intermediate steps there may be between the action and the effect. Though we may not know anything of the mechanism of a watch, how the action of winding affects the mainspring, or even that it has a mainspring, yet the constant association, both in presence and in absence, of winding and going compels us to conclude that there is a causal connection between them. It is not material to the conclusion, and does not affect the validity of the conclusion, whether or not we know how the removal of the queen bee influences the bees to rear another queen; how the frost causes failure of the crop of fruit; how incubation promotes the chick in the egg; how insects contrive to fertilise flowers; how chimney-sweeping causes cancer; and so forth. These are, no doubt, useful and valuable things to know, and until we know them our knowledge of the chain of causation is not complete: we know a cause, but not the immediate cause. Nevertheless, we do gain from observing association a very valuable knowledge of

causation, and a knowledge that, though it may not be complete, is none the less certain as far as it goes.

The method of establishing constant association is the method that Mill had confusedly in his mind when he formulated his ridiculous Canons of Agreement and of Difference.

C. If the association is inconstant, it may be that the action is sometimes attended by the effect and sometimes not, or it may be that the effect is sometimes attended by the action and sometimes not. For the sake of brevity we will consider those effects only that are changes.

If, on the action occurring, the effect sometimes follows and sometimes does not, the action may be a cause of the effect, but can be so in certain conditions only.

If the effect is sometimes preceded by the action and sometimes not, the action may be a cause of the effect, but cannot be the sole cause.

If, however, the association of the action with the effect, although inconstant, is yet more frequent than casual concurrence will account for, the action must be the cause in some cases.

No housekeeper has any doubt, or need have any doubt, that thunder is causally connected with the beer turning sour. The association is not constant. Beer does not always turn sour in thundery weather, and sometimes turns sour when the weather is not thundery; but still, considering how relatively rare thundery weather is, and how relatively rare it is for the beer to turn sour, the relative frequency of the conjunction is much greater than mere casual concurrence will account for on the Doctrine of Probability. The excess of cases of the association over the number that casual concurrence will account for justifies the presumption, in that excessive number of cases, of a causal connection.

The presumption that fog is a cause of bronchitis is entirely justifiable, and is justified by the same principle. Not everyone who is exposed to fog has bronchitis; not everyone who has bronchitis has been exposed to fog. Clearly, therefore, fog is not a necessary cause of bronchitis: it can be a cause, if at all, in certain conditions only; and clearly, fog cannot be the only cause of bronchitis. Nevertheless we may safely presume that in certain conditions fog is a cause of bronchitis, because, though the association is not constant, it is much more

frequent than mere casual concurrence will account for. In this instance the method of association grades off and merges into the method of concurrent and proportional variation, for not only is the number of cases of bronchitis increased whenever there is a fog, which exemplifies the first method, but also the number of cases of occurring bronchitis has a direct relation to the severity and duration of the fog, so that there is to some extent concurrent and proportional variation. The proportion is, however, but very vague, for on the one hand, though we can measure the duration of a fog, we cannot, or do not, measure its severity; and on the other, though we register the number of deaths from bronchitis, we do not register the number of cases that occur; and this vagueness in the proportion prevents us from applying Method V (Concurrent and Proportional Variation) with any strictness; and in fact our presumption, our valid and justifiable presumption, that fog is one cause of bronchitis rests in the main upon the observation that they occur in association much more often than a casual concurrence would account for.

Many of the assigned causes of disease, and most of the assigned causes of insanity, are assigned upon this principle when they are assigned on any principle at all. No alienist has any doubt that childbirth is a cause of insanity, nor need he have any doubt, although by far the greater number of childbirths are not followed by insanity, and by far the greater number of attacks of insanity are not preceded by childbirth: in fact, many cases of insanity occur in males, and could not own this cause. The reasons which justify us in presuming that childbirth is a cause of insanity are first, the rapidity with which the insanity follows the childbirth, which goes some way to bring the case under the first Method of ascertaining causes, the Method of Instant Sequence; and second, and mainly, the fact that insanity and childbirth are associated together more frequently than can be accounted for by casual concurrence. That they are more frequently associated is always taken for granted, and though it has never been avowed, or even discovered, that it is this more frequent association that is the warrant for our presumption of a causal connection, there is not the slightest doubt that this is our warrant. Now that the warrant is discovered, it will be easy to show how far it is valid. The aggregate number of the female population of child-bearing age in this country in any year is approximately

known. The number of child-births, and the number of women of child-bearing age who become insane, are also known for any one year. From these data it should be easy for any competent statistician to calculate the number of child-bearing women who would become insane, on the Doctrine of Probability, if child-bearing had no part in the causation of the insanity. Any excess over this number of cases of insanity at the puerperium must be due to child-bearing, provided, of course, the numbers in the calculation are large.

Most of the cases in which heredity is alleged as a cause of disease rest, though the assertors do not know it, upon the same principle. Gout, insanity, phthisis, leprosy, cancer, and other diseases, are found sometimes to occur in those whose one or more relatives have suffered from the same disease; and when this is the case it is usually assumed without hesitation that inheritance was the cause, or had a share in the causation, of the disease. On the principle now under discussion there is no warrant for such an assumption unless the number of cases occurring in one family is greater than would be normal on the Doctrine of Probability, and unless also causal influences proper to the families, and common to the several members or the families, can be excluded.

While this principle, if applied strictly, and with caution to ensure that the cases of association are actually more numerous than they would be on the Doctrine of Chances, is sound, and justifies the presumption that the association is causal in some at least, though probably in some only, of the cases in which it is found, yet, when this precaution is not taken, the method is extremely likely to mislead, and is more often the ground of false attribution of causes than perhaps any other method. Nothing is more frequent than to find an action assigned as the cause of an effect on no other ground than that of an association, which may have been merely casual, which may not be more frequent than casual concurrence will account for, and which may have been observed in but few cases, or even in but one. It is perhaps the most frequent source of the fallacy of arguing *post hoc, ergo propter hoc*.

D. Again, we may assume causal connection from association, even though the association of the action with the effect is not constant, if the associated effect has a constant peculiarity: if, that is to say, whenever that action has preceded, the effect

has a certain quality, which is absent when the effect is not preceded by that action.

Insanity often occurs in persons who have not drunk to excess, or have even been total abstainers; and often does not occur in those who have drunk to great excess for many years. The association between drinking to excess and insanity is very inconstant. But when insanity does occur in those who have long drunk to excess, it has certain features which are peculiar—which are alike in all such cases, and are never seen in the insanity of those who have not drunk to excess. This constant quality in the effect warrants a confident presumption that the cause in all such cases is similar; and as the only constant preceding action is excessive drinking, we assign this as the cause.

Similarly, there is no constant association between total abstinence from alcohol and self-righteousness. There are many total abstainers who are not self-righteous, and many self-righteous persons who are not abstainers; but when a total abstainer is self-righteous, there is a smugness in his self-righteousness that is so constant that it warrants us in attributing the self-righteousness to the total abstinence, or at least in presuming a causal connection between them.

The handling of *primula obconica*, *humea elegans*, *whitlavia grandiflora*, and certain other plants, is apt to be followed by the appearance of nettle-rash on those who handle them. The association is not constant: nettle-rash does not always follow the handling of these plants, and often occurs in people who have never been near any of them; but when nettle-rash does follow the handling of the plants, it has certain characters that are the same in each case, and do not appear in other cases of nettle-rash. Hence we may presume, from this constant character, a causal connection between the nettle-rash and the handling of the plants.

Rain often falls without the accompaniment of a thunder-storm: thunderstorms sometimes occur without the accompaniment of rainfall; but when rain does accompany a thunder-storm, it has, in the large size of the drops, a peculiar character by which it may be recognised, and which justifies us in presuming a causal connection between the thunderstorm and the rain.

This is as appropriate a place as any in which to examine Mill's fourth Canon, which runs as follows:—'Subduct from any

phenomenon such part as is known by previous inductions to be the effect of certain antecedents, and the residue of the phenomenon is the effect of the remaining antecedents.'

Why Mill should have invented the word 'subduct' when he had already to his hand the familiar words subtract and deduct, it is not easy to say. Used by a latter-day philosopher, one would surmise that it had been employed to conceal poverty of thought, to strike awe into the mind of the reader, and impress him with an expectation of the profundity of the wisdom and penetration of what follows; but Mill was too honest to have recourse to such a stratagem unless he had first deceived himself, and this was probably the case. Passing this, we may next notice that the method has no claim whatever to the title of Experimental. The instance given, not by Mill, but by every other authority, is the discovery of the planet Neptune, and Mill, though he does not give this particular illustration, gives others from the science of astronomy. But no experiment was employed in the discovery of Neptune, nor is it possible to experiment with the positions of the planets or the stars. This Experimental Method for the discovery of causes is therefore neither experimental, nor is it employed in the discovery of causes. We have already seen that it was not the method by which Neptune was discovered, and if we analyse the instances that are adduced by Mill and other writers, we shall find that in not one case has the cause of anything ever been discovered by the Method of Residues. I do not say that it is impossible to discover a cause by this method, though I think it very unlikely that it can be done; but it has certainly not been done yet. All that has ever been discovered by the method is that there is something new to be accounted for, something of which the cause is not yet known, and then the cause of this new 'phenomenon' is discovered by one of the methods set forth in this Chapter, but not by the Method of Residues.

V. CONCURRENT VARIATION.

Causal connection may be established by the discovery of concurrent and proportional variation of action and effect; and is the more warrantable the closer the concurrence and the more exact the proportion.

This is a very far-reaching method, and though its employment is seldom in comparison with some of the other methods,

it gives results when their employment is impracticable. In some cases, as will be seen in the examples adduced hereunder, it is impossible to trace any action upon the thing changed, but the concurrent and proportional variation of the action and the change impels us irresistibly to conclude a causal connection between them.

The method, as stated above, replaces Mill's Method of Concomitant Variations, which, as he states it, is manifestly false. His fourth Canon runs :

'Whatever phenomenon varies in any manner whatever whenever another phenomenon varies in some particular manner, is either a cause or an effect of the phenomenon, or is connected with it through some fact of causation.'

This Canon is, if possible, more ludicrously inept than the others, but it has nevertheless been endorsed by every writer of the school of Mill since he first stated it. According to this Canon, if the weather varies in any manner whatever whenever a child is growing, then the weather is either a cause, or an effect of the child's growth, or is connected with the child's growth through some fact of causation. Similarly, if the tide varies in height when the corn is ripening ; if the fashion in women's dress 'varies in any manner whatever' whenever icebergs are unusually numerous in the Atlantic ; if slugs become very numerous when Halley's comet reappears ; then these 'phenomena' are connected through some fact of causation. Manifestly, it is not enough that the one 'phenomenon' should vary in any manner whatever ; such a stipulation is of no value, as any child can see. The one phenomenon must vary proportionally with the other. The proportion need not be exact, but some proportion there must be between the two occurrences or changes to enable us to presume a causal connection ; and the more exactly the proportion is maintained, and the closer in time the one change to the other, the more confidently we may presume the connection.

The most familiar instance is the concurrent and proportional variation between the turning of a tap and the flow of water or the size of the gas flame. As the tap is turned more and more towards the straight position, so, concurrently and proportionally, does the flow of water increase in volume or the flame increase in size. As the tap is turned more and more towards the cross position, so, concurrently and proportionally, does the flow of water or the size of the flame

diminish. The variation is not exactly proportional throughout the whole range. When the tap is near the straight position, the additional effect produced by additional alteration is less than when it is near the cross position ; and when it is straight, or nearly straight, slight alterations of position have no answering alterations in the flame or the stream of water ; but still, on the whole, the variation in the size of the flame or the stream are so closely concurrent with the variations in the position of the tap, and generally observe so strict a proportion, that a bystander who had never before seen a tap or a gas flame would be compelled to presume the causal connection, and would feel his conclusion the more inescapable, the more often he saw the experiment repeated. Still more assured would his certainty become when he found that the more rapid or the slower the action, the more rapid or the slower was the effect, and that any interruption of the one was attended by interruption of the other. Concurrence so close, and generally so closely proportional, would carry to his mind the irresistible conviction of causal connection. It is true that in this case our conclusion is partly derived by the Method of Instant Sequence, but, as will be more fully shown hereafter, we usually employ more than one method.

The great importance of the method of concurrent and proportional variation is that it can be applied when no other method of ascertaining causation is applicable, when experimentation is impossible, and even when the means by which the effect is produced are beyond our knowledge and beyond conjecture. It is by this method that a causal connection has been established beyond all doubt between spots in the sun and magnetic storms on the earth, a causal connection that could not possibly have been established in any other way. It is by this method that a causal connection has been established beyond all doubt between the tendency of mankind to suicide and the length of the day. The number of suicides in Europe, and the proportion of suicides to the population, have been found to be subject year after year to seasonal variations. The number of suicides is lowest in December, when the days are shortest, and highest in June, when the days are longest. The proportional variation is not exact : if plotted on a curve, the curve would be irregular, and would vary from year to year and from country to country : but still, taken over many years and in many countries, the number of suicides increases with an

approach to regularity, month by month from the winter solstice, until, when the summer solstice is reached, the number is doubled, and it then declines again irregularly through the summer and autumn months to its minimum in November and December. Since the proportion is not exactly maintained, it is clear that other influences are at work; but since the proportion obtains generally year by year in every European country, we are compelled to presume a causal connection between the number of suicides and the length of the day, even though we are utterly unable to conjecture the manner in which the causal influence is exerted. It is clear that the number of suicides cannot affect the length of the day; and we cannot suppose that longer hours of daylight affect the mind of the potential suicide so as to confirm his purpose. Through what devious channels the causal influence travels we cannot conjecture; but that the length of the day is in some way causally connected with the number of suicides we cannot doubt.

In such a case as has just been examined, the facts are beyond doubt, and admit of no uncertainty; but the method requires care in its application, and is open to more opportunities for error than any other method, for this reason among others, that it is employed usually in cases that are complex and intricate; in cases in which many causes, some perhaps unsuspected, may be contributing to a result; in cases in which other methods cannot be employed to check and control our conclusions; and also because it usually depends on the collection of statistics, with all the numerous and inevitable errors to which the collection of statistics is liable. The manipulation of numbers is perhaps the most accurate process of which the human intellect is capable. Given a set of numbers to start with, every step in calculation can be checked with the most rigid exactness, so that it is scarcely possible for two competent calculators to arrive at different results; but the applicability of these results, and the correctness of the inferences to be drawn from them, depend entirely on the correctness of the original figures from which the start was made, and this is usually sadly to seek. It is easy, for instance, to establish a concurrent and proportional variation in the amount of drunkenness in a community and the number of crimes committed in that community, and hence to establish a causal connection between drunkenness and crime; but consider the methods in which the statistics of crime and of drunkenness are collected.

The statistics of crime are taken from the records of the police, but different chief constables have very different views of what should constitute an offence 'known to the police', and their statistics will vary accordingly. When loss of property is reported to one chief constable, he enters it at once as a theft. If it is subsequently discovered to have been an accidental loss, it is taken out of the class of thefts; but if the manner of the loss is never discovered, the loss remains recorded as a theft. Another chief constable will not enter a loss as a theft unless there is good reason to believe that the property has been stolen; and a third will not enter anything as a theft unless the thief has been caught and prosecuted, and a conviction obtained in a court of justice. It is clear that to compare with one another the statistics of theft in these three districts would be absurd. Again, in a district in which the Watch Committee contains a large proportion of teetotalers, and the magistrates take a stern view of drunkenness, the number of drunkards apprehended, or summoned, and convicted will be at a maximum. In an adjoining district, in which the amount of drunkenness is not less, or may even be greater, but in which the police have instructions to look leniently on slight departures from sobriety, and rather to see a man home or to put him in care of a friend than to arrest him, and in which the magistrates are prone to give offenders the benefit of any doubts they may entertain, the statistics of drunkenness may be less by a third, or even a half. Again, 'serious' offences are those which are tried at assizes or quarter sessions: 'trivial' offences are those disposed of in courts of summary jurisdiction; but in many cases the offender has an option whether he will have his case disposed of by the magistrate, or whether he will elect to go for trial; and in exercising this option he will be influenced by the reputation of the magistrate for leniency or severity; and in this case again the statistics of 'serious' crime in the jurisdiction of one magistrate are not comparable with those of such crime in the jurisdiction of another. Differences such as these are seldom allowed for by the statistician. In his eagerness to have a set of figures to manipulate, and to produce a result that shall be 'mathematically accurate', he is too often blind to the initial errors of the figures that form the basis of his calculations.

In most cases, variation, when concurrent and proportional, is so within certain limits only, and unless these limits are observed the causal connection will be stated too absolutely, as

in fact it usually is. Within certain limits, the rate at which a plant grows is concurrent and proportional to the temperature; but there is a certain lower limit of temperature at which the plant will not grow at all, and however much this limit may be exceeded, the growth of the plant exhibits no proportional variation; and there is a certain higher limit at which the plant suffers damage, and will not grow, and however much this limit may be exceeded, the growth of the plant exhibits no proportional variation. Within certain limits, the consumption of a commodity varies in inverse proportion to the price; but there is a certain lower limit of price at which the consumption is at a maximum, and however much the price may be lowered beyond this limit, the consumption will not increase; and there is with many commodities a certain price at which the consumption of that commodity is at a minimum, and however much beyond this the price may be increased, the consumption of the commodity will not diminish. Within certain limits, the amount of work that a man can do varies concurrently and proportionally with the amount of food he eats; but there is in the quantity of that food a certain lower limit at which he can do no work, and no diminution of the food below this limit can diminish his work; and there is in the quantity of this food a certain upper limit at which he can do the maximum of work, and any increase beyond this does not increase, but diminishes, the quantity of his work. This limitation of the application of the method of concurrent and proportional variation, obvious as the limitation is, has never been noticed by any writer on the subject; but then no one but logicians have written on the subject, and, as I have said elsewhere, logicians are blind to the obvious, naturally blind; but they must have taken great pains not to see many of the things they neglect. Such an excess of unobservation is not in nature.

VI. COMMON RARITY.

If an unusual effect is associated with an unusual action, we are apt to assume a causal connection between them, and the assumption has the more justification the more unusual both the action and the effect are.

In the early '80's of the last century there was a terrific volcanic eruption at Krakatoa, in Java, a great part of the mountain being blown up and dissipated. An eruption of such

violence had not occurred in historic times. Weeks afterwards there occurred in this country, and indeed almost the world over, a prolonged series of most wonderfully coloured sunsets, such as no one living had ever witnessed before. This extremely unusual effect was connected by its very rarity with the extremely unusual volcanic action, far away as that action was ; and it was argued, and the argument was generally accepted, that the gorgeous sunsets were due to the presence in the air of an unusual quantity of impalpably fine dust, which had been projected into the upper regions of the air by the explosion of the volcano, and had floated to distant parts of the earth. It was the common rarity of the action and the effect which suggested a causal connection between them.

In the great frost of 1686 many great trees suddenly split from top to bottom with a loud report like that of a cannon. Our ancestors did not know how the frost could produce this effect ; but it is a very rare occurrence, and so intense a frost was a very rare occurrence ; and the common rarity of the two events led to the assumption that they were causally connected, and that the frost was the cause of the splitting of the trees.

In sparsely populated countries the advent of a visitor is a rare occurrence. If, after such an occurrence an object is found to be missing, and this also is a rare occurrence, causal connection between the occurrences will be presumed on the ground of their common rarity.

In the very exceptionally severe winter of 1895, seagulls appeared for the first time as far inland as London Bridge. The common rarity of the two events pointed inevitably to a causal connection between them.

VII. CORRESPONDING QUALITIES.

Any peculiar quality in an effect points to a corresponding quality in the agent that produces the effect.

This principle is very frequently employed in practice, so frequently that it is puzzling that writers on causation have overlooked it. Like several of the other methods here described, it jumps up and hits in the face anyone who gives a moment's consideration to the subject ; and like others of the methods, it has been familiar to us from our earliest years. The leading case is that of Robinson Crusoe and the footprint. When he

saw the footprint in the sand, did Crusoe wait until he had seen two or more instances of the phenomenon having only one circumstance in common, and two or more instances in which the phenomenon was absent having nothing in common but the absence of that circumstance? Not being a logician or a lunatic, he did nothing of the kind. He said at once 'A man has trodden here.' What was his justification for this conclusion? It was that he saw in the print certain peculiar qualities which pointed irresistibly to corresponding qualities in the agent that produced the print. These peculiar qualities in the print corresponded with peculiar qualities of the human foot. No other agent possesses them. The inference was inescapable that the human foot was the agent that produced the print.

This method is particularly valuable when it is desired to identify, not so much the cause, as the agent that has produced a certain effect. It is therefore especially used by the police in criminal investigations, in which the cause, human agency, is already known, and what is desired is to identify the agent. The modern method of criminal investigation, devised by Major Atcherley, the Chief Constable of the West Riding, is avowedly founded on this principle. He takes it as an accepted fact that no two men are exactly alike, and that the differences, small but easily distinguishable, that enable us to identify the face and figure of every man, and to distinguish him from his fellows, are paralleled by differences that, if small, may be distinguished by skilled and trained observation, between their modes of action. Thus it is found that each criminal has his own special department of crime, to which he confines himself wholly or mainly. One is a burglar, another a pickpocket, another a long firm swindler, another an area sneak, another a perpetrator of the confidence trick, and so on. More than this, each pickpocket, each burglar, each long firm swindler, and so on, has his own minor peculiarities of action, which leave their peculiar impress on the effects that he produces; so that, given all the details of the effects produced by a crime, it is usually possible to conclude which particular criminal known to the police has committed it.

In order to secure a conviction, however, it is not enough that the police should know what criminal has committed the crime; it is necessary in addition that they should have evidence to lay before the jury connecting the criminal, as

agent, with the crime as effect or result. This can only be done by proving some peculiar quality in the crime, or in some accompaniment, part, or condition of the crime, that corresponds with a peculiar quality, either in the agent himself, or in some instrument peculiar to him.

Thus, if a wound has such qualities as show that it was inflicted by the left hand, and the accused is left-handed, the conjunction is evidence against the accused; but since left-handedness, though unusual, is not peculiar to the accused, he should not be convicted on this evidence alone. If, however, the print of a bloody hand shows that the criminal had lost half the second finger and the whole of the third, and if the accused has lost these parts, then he must be convicted, for such qualities are peculiar to him. It is on this principle that the evidence of finger marks is conclusive of the presence of the person with whose fingers they correspond; for the finger markings of each individual person are peculiar to him alone.

If a jemmy found in the possession of the accused exactly fits marks on a door that has been prized open, the jemmy is evidence against the accused; but it is not proof, for many jemmies may be made of the same bar of steel, and many bars of steel by the same rollers, and therefore the quality of the jemmy would not be peculiar or proper to that jemmy; but if the edge of the jemmy is chipped and shows a notch, and if the mark on the door fits the edge of the jemmy, notch and all, then the identification of the jemmy, as the agent that produced the effect, is beyond doubt, for now the corresponding qualities of the effect and the agent are peculiar.

When Crippen was accused of the murder of his wife, certain human remains were found in his cellar wrapped in pyjamas. So far this was no evidence against Crippen; but it was subsequently proved that he had bought those very pyjamas; and thus an instrument of the crime was shown, by the possession of peculiar qualities, to have been in his ownership.

An anonymous letter, typewritten throughout, is received. The script is that of a common make of typewriter, and is not peculiar; but every impression of one of the letters exhibits a certain defect. If a typewriter can be found having that peculiar defect in that letter, then there is no doubt that this typewriter was the agent employed, and that the person who wrote the anonymous letter had access to that typewriter.

A gardener finds his seedlings gone, and on the soil on which

they grew he finds a shining track of dried slime. He concludes at once that the agent that has taken his seedlings is a slug, for the quality of the shining track is peculiar, and corresponds with the peculiar quality of slugs of leaving such a trail behind them. He knows, moreover, that slugs have an appetite for seedlings, having often lost seedlings by slugs before. Thus by a combination of the Method of Corresponding Qualities with the Method of Similarity he concludes that the criminal that stole his seedlings was a slug.

It is usual in English parks to see all the trees, however irregular the rest of their outline may be, present a flat surface towards the ground, at the same distance from the ground in every tree. The common effect points to a common cause : the peculiar quality of the effect points to a peculiar quality in the agent : the agent must be one that can reach to just the height from the ground at which the foliage terminates ; and the only such agents that have access to the trees are the cattle or deer that are pastured in the park.

VIII. COINCIDENCE IN AREA.

If an action has taken place on a certain area of a thing, and if subsequently a certain effect is found to be precisely limited to that area, then we may confidently presume that that action was the cause of that effect. It is more frequent, however, to infer from coincidence of area the influence of a condition than that of a cause, and in many cases the distinction is practically unimportant.

When a picture that has long been hanging on a wall is taken down, it is usual to find the area of wall paper that was behind the picture deeper in colour than that of the surrounding wall paper, and the area of the deeper colour coincides with the area of the picture. In such a case we are driven to the conclusion that the prolonged presence of the picture in that place was a condition of the retention of its colour by the paper behind.

If in summer a drain is laid across a lawn, and the ground is filled in, and the turf relaid, it may be found in the following winter that hoar frost is thick upon the ground over all the rest of the lawn, but that the line over the drain is free from frost. The coincidence in space compels us to presume that the altered state of the ground brought about by laying the

drain is a condition of the non-appearance of the frost, and that the action of laying the drain was an indirect cause of this unchange.

It sometimes happens that a rash appears on a person's legs exactly up to the level of the top of his stockings, and there ceases abruptly. Such coincidence in area compels us to presume that the wearing of the stockings is a condition of the effect, the putting of them on an indirect cause of the effect, and the action of something in the stockings the direct immediate cause of the effect.

In experimental agriculture it is a frequent practice to sow an area of soil uniformly with a certain kind of seed, after different portions of the area have been treated with different manures, and one portion of the area with none. Any difference in the crop which is uniform over one portion so treated, and coincides with the area treated, is presumed to be due to the presence of the manure in that area, which was a condition, as the manuring was an indirect cause, of the result.

It has been found that the vegetation of a meadow is different in two narrow parallel lines a few inches wide, extending from one gate across the meadow to another. When it was remembered that a cart was driven across the meadow from one gate to the other, and that the lines of different vegetation coincide with the cart track, it could not be doubted that the traverse of the cart was the cause of the difference in the vegetation.

The area over which the action extends, and to which the effect is limited, need not be continuous.

Every gall that grows on trees or plants is found to contain, or to have contained, the larva of an insect. It is therefore presumed that the presence of the larva in the gall is causally connected with the formation of the gall. From other sources of information we know that in each case the larva grows from an egg that has been inserted by the mother insect into the tissues of the plant. As galls do not grow on any part of a plant into which an egg has not been inserted by an insect, the coincidence in area, of the attachments of the galls with the places into which eggs have been inserted, compels us to presume that it is the operation of inserting the egg, or something accompanying that operation, which is the cause of the galls.

The same principle is constantly employed in the physiological and pathological laboratory. To find the physiological action of a food or a drug, two animals as nearly as possible

alike are taken, and placed under similar conditions. The food or drug is then administered to one, and not to the other; and any physiological change that is limited to the one to which the food or drug has been administered is presumed to be due to the administration.

Similarly, in experimenting on or with bacteria, two or more test-tubes or surfaces are taken, and are treated similarly in every respect but one. Whatever difference ultimately appears between them is held to be due to the one respect in which they were differently treated.

IX. COINCIDENCE IN TIME.

As the method of Instant Sequence is limited in application to the discovery of those effects, or of the causes of those effects, that are changes, so the method of Coincidence in Time is limited to the discovery of the causation of those effects that are unchanges; with this exception, that by the latter method we may sometimes identify the agent that produces repeated instances of change. This we do by ascertaining the presence during the whole time these effects are being produced, of a certain agent, or of similar agents.

If, upon making a manure heap near a house, that house becomes infested by a plague of flies, and if, upon the removal of the manure heap, the plague is stayed, then we should presume a causal connection between the manure heap and the flies, even if we did not know that flies breed in manure.

How do we gain the belief that sea-sickness is due to the motion of the boat? The sole foundation for the belief is in the coincidence in time of the motion with the unpleasantness.

How do we know that the din of a factory is due to the motion of the machinery? Partly, no doubt, by Subsumption of the case under the law that all noise is due to motion; partly by the method of Concurrent and Proportional Variation, since the nearer we approach to the apartment in which the machinery is, the louder the noise becomes, and *vice versa*; but mainly by the knowledge that when the machinery starts the noise begins; that the noise continues as long as the machinery is going; and subsides into silence the instant the machinery stops.

How do I know that the draught that is blowing my papers about comes from the open window? By observing that it

began the moment the window was opened, continued as long as the window remained open, and ceased as soon as the window was shut.

It is necessary, I suppose, to adduce an instance from 'science,' and therefore I may here point out that the causation of magnetic storms by sunspots, which is ascertained partly, as already shown, by the method of Concurrent and Proportional Variation, receives corroboration from the method now under consideration, of Coincidence in Time.

If a number of thefts take place in a house, and if, upon one of the servants leaving the house, the pilferings cease, and especially if it is then remembered that the pilferings did not begin until after that servant entered the house, the presumption is very strong that that servant is the pilferer. In this case the coincidence in time is not between a cause and an effect, but between the presence of an agent and a series of effects.

If it is found that explosions in coal mines coincide in time with depression of the barometer, the presumption is raised that the lowness of the pressure of air has a causal influence on the explosions. It is evident that, while from one aspect this may be regarded as a case of Coincidence in Time, from another aspect it may be regarded as a case of Association.

These, then, are the nine or twelve circumstances that warrant us in presuming a causal connection between an action, an agent, or a condition, and an effect or result. Any one of them, if fully established, justifies the presumption of causation or of causal connection, but in practice we rarely limit ourselves to one method, and in practice, moreover, they are not as distinct as they are here made to appear by systematic description and somewhat artificial separation. When we seek to discover a cause, or a condition, or an agent, we use what means we can; and it is only after our reasonings are complete that we are able to analyse them, and to extricate from the various considerations that influenced us the separate elements that are here disentangled and separately displayed. In practice they are no more pursued in isolation from one another than deduction and induction, fundamentally different as they are, are employed in isolation from each other. Few of the methods of ascertaining causation can be employed quite separately, for as most of them have a common origin in the Axiom of Causation, they are not wholly different, but merge and blend

into one another; what separation they have being largely artificial, so that a given instance may often be ranked under one or another method according to the way in which we contemplate it, and according to the feature to which we give prominence. The only methods that are not derived from the Axiom of Causation are the Method of Instant Sequence, the Method of Coincidence in Time, and the first application of the Method of Association. It will be interesting to inquire what grounds we have for inferring causation by the use of these methods.

What warrant we have for concluding that a change in a thing that instantly follows upon an action on that thing is the effect of the action, is not immediately apparent. Few convictions are more firmly and deeply rooted in our minds, and at a very early age too, as we see when the baby in arms blows upon a watch. Having seen the change follow once, the child concludes that it is the effect, and that it does draw this conclusion is proved by the child repeating the action with the evident intention of seeing the change repeated. If the sequence, of a change in a thing occurring instantly upon an action on that thing, were constant in experience, the empirical ground of the conviction would be manifest and would be sure; but there is no such constancy in experience. We frequently witness actions that are not instantly followed by perceptible changes in the thing acted on, and we frequently witness changes in things that are not instantly preceded by perceptible action on the thing changed. The experience of instant sequence is no doubt frequent; but it is by no means constant in experience. The real ground of the inference is, I believe, in our experience of our own acts—in the changes in our own bodies that instantly follow the exertion of our wills, and in the changes instantly produced both in things around us and in ourselves by our own acts. The first sequence is strictly constant in experience. Our own movements instantly follow the action of our wills, and never in health take place except in instant sequence to volition. It is often objected that this cannot be the origin of our notion of causation, because we do not know how the mental operation of the will can produce a bodily movement; but this is beside the question. Such knowledge is quite unnecessary for the origin of the notion. It is enough for us that the exertion of the will is to us an action. It is an exertion of the activity of the self, and is not

only to us an action, but is, I believe, the ultimate source of our notion of action. And it is, to us, an action on our bodies and limbs. Whether the will does or can act upon the body, and if so by what means, is beside the question. It is indisputable that it seems to us to do so, and that, until our minds are sophisticated by the teaching of philosophers, it is to us as unquestionable a certainty as the existence of an external world, or as our own existence. The second sequence also, that of the instant changes that follow our own acts on things around us, is constant in experience. It is true that some of our actions on things around us are not instantly followed by perceptible changes in them, as when we hit a brick wall with the fist, but there is always an instant change either in them, or in ourselves, or in both. Even when we hit a brick wall with the fist, the action is instantly followed by the sound of the blow and by the pain of the blow. I think, therefore, that the ground of our belief in the causation of a change that instantly follows an action is empirical, and is based, as so many of our most certain convictions are based, upon the *enumeratio simplex*.

That we should argue causation from Isolated Action is more easily explained. We come to the instance with the conviction in our minds that a change in a thing must be due to an action on that thing; and if the change is preceded by one action only, or by but one material action, that action must be the cause of the change.

The method of Coincidence in Time rests upon the manifest connection that this coincidence establishes. A cause is an action connected with a change or unchange in the thing acted on. If we can establish a coincidence in time between the unchange and an action, we have gone far to identify the cause; for, as already shown, the action that causes an unchange is necessarily contemporaneous with the unchange, and begins, continues, and ends with the unchange.

All the other methods derive their validity from the fundamental Axiom of Causation, that like causes in like conditions produce like effects. The Method of Assimilation is the direct application of the principle. Subsumption under a general law is a direct, but a wider application of it, to cases fundamentally similar though superficially different. It is effected by establishing similarity in material features between the case in hand and the cases assembled under the law. Constant

Association of the action with the effect means the constant association of similar action with similar effects, so that if one pair is causally connected, the other pairs are causally connected.

Constant Association of an action with some quality in the effect comes under the same rule. An association that is more frequent than casual concurrence will account for again implies the comparison and assimilation of cases, and assumes that in similar conditions similar effects are produced by similar causes. The Method of Concurrent and Proportional Variation rests upon the assumption that not only do like causes in like conditions produce like effects, but also like differences in causes produce like differences in effects; and similarly, the other Methods manifestly obtain their validity from the same fundamental axiom, or from some derivative of it.

It follows that the methods, being founded upon the same principle, and being but different applications of the same principle, are not only fundamentally similar, but merge and blend into one another, so that not only may we employ more than one concurrently, but also the method that we employ in any individual case may often be relegated to one or another of the twelve methods, according as we choose to regard it, or according as we lay stress on this or that feature in our method. The Method of Coincident Areas, for instance, may be regarded as a case of the Method of Association. It may be called a case in which the addition alone of an action is followed by an effect, or the withdrawal alone of an action is followed by the disappearance of an effect. In this way of stating the matter, however, the time element is brought into prominence; but in applying the Method of Coincident Areas we drop the time element out of consideration, and found our conclusion directly upon the coincidence in space which is a guide or indication to the presence or absence of the action. The Method of Common Rarity is, in one aspect of it, another instance of the first Method of Association. Seeing that Like effects in like conditions are always owing to like causes, it follows that a rare effect must be due to a rare cause or to rare conditions; and when it is preceded by a rare action we are justified in associating the rare action with the rare effect, because common actions can be excluded if the conditions are common. It is possible, therefore, to diminish the number of

methods, but only at the cost of exercising a certain amount of ingenuity in bringing some under others; and it would be possible to increase the number, but only by making distinctions scarcely worth making, and at the cost of increasing the burden on the memory. As they are stated, they present a useful and practical compromise.

Summary.

The methods of ascertaining causation used by scientific men in scientific matters are precisely the same as those used by everyone else in the common affairs of daily life, and are nine in number, one of them including four distinct methods, so that there are twelve in all, as follows—

- I. Instant Sequence.
- II. Subsumption under a general law.
- III. Assimilation.
- IV. Association.
 - A. When sole, or isolable.
 - B. When constant.
 - C. When too frequent to be casual.
 - D. When attended by a constant peculiarity in the effect.
- V. Concurrent and Proportional Variation.
- VI. Common Rarity.
- VII. Corresponding Qualities.
- VIII. Coincidence of Area.
- IX. Coincidence in Time.

These are here substituted for Mill's four Methods of Experimental Enquiry, which are not four, but five; some of which cannot be, and none need be, experimental, and none of which ever has been used or ever could be used. Mill's methods are examined and found to be all absurd, and one of them unintelligible.

Each of the methods above enumerated is examined, and shown by illustrative examples to be in use for the discovery of causes, both in scientific and in other matters. In practice it is usual for more than one method to be employed without discrimination in the same case; and as all but three of them are founded on the Axiom of Causation, separate discrimination of any but these three is to some extent artificial.

CHAPTER VII.

ERRORS IN ATTRIBUTING CAUSATION.

CAUSATION has been defined as the connection between action on a thing and the sequent change or accompanying unchange in the thing acted on. It follows that in order to prove causation we must prove

- (1) Action on the thing changed or maintained unchanged.
- (2) Sequence of the change on the action, or contemporaneous action and unchange.
- (3) Connection between the action and the change or unchange.

It follows also that the following blunders in attributing causation are possible, and in fact they are often committed.

- (1) An agent may be taken for a cause.
- (2) The agent may not exist.
- (3) The action may not exist.
- (4) The action may not be on the thing in which the effect is produced.
- (5) The action on the thing changed may not be connected with the change.
- (6) The action may not precede the change or accompany the unchange.
- (7) A condition may be taken for a cause.

(1) A cause is an action, and an action implies an agent. It would seem, therefore, that the first step in discovering a cause is to discover the agent ; but this is not necessary. A cause is an action, and when we have identified the action that causes the effect, we know the cause, and need not go behind it to discover the agent. Before the discovery of gravitation, the action of the earth, in attracting bodies on its surface towards the centre, was as well known as it is now, but that action was attributed, not to the earth, which contributes immeasurably the greater part of the action, but to the heavy

body, which contributes but an infinitesimal part. When we have discovered that a man's death is due to the action upon him that we call typhoid fever, we know the cause of his death; and this cause was known long before the agent, the micro-organism, was discovered. When we find a window starred, we have no doubt that the starring is due to the impact of a hard body, though we may be quite unable to discover the body, the agent whose action was the cause of the damage.

An action is sometimes mistaken for an agent. Natural Selection, which is the action upon living organisms of destructive agents, is often spoken of as an agent, and taken to be an agent. Few expressions are more frequent in the writings of biologists than 'the action of Natural Selection', an expression that is quite correct if it means 'the action that is called Natural Selection', but that is mistaken if it means, as it often does, 'the action that is produced by Natural Selection.' Passing this error, which is something more than an error in nomenclature, we come to the first of the errors enumerated in our list, the taking of an agent for a cause. This is a very common error in popular speech. 'Thou art the cause of this anguish, my mother.' 'You are the cause of this disaster.' Mill even considered the earth to be the cause of the fall of a stone. It is, of course, the action of the mother, and of the other person accused, and of the earth, that were the causes. The persons were the agents, and not being actions, could not be causes. I think every one with a nice sense of the use of language, and of the meanings of words, will admit that to speak of a person, or indeed of any other agent, as a cause, is a perversion of language.

(2) In the search for causes we are not obliged to go back as far as the agent. The cause is already discovered when we have discovered the action connected with the change or unchange in the thing acted on; but it is often extremely useful to identify the agent, and some of our investigations into causation, such as those into the causation of crimes, have no other purpose. Still, as we have seen, the action and the agent are often identified, and very often indeed no sufficient distinction is drawn between them, and search is made for an agent instead of for an action. Nay, the fancied necessity for finding an agent is so urgent, that not only may that be taken

for an agent which exerts no action on the thing changed or unchanged, but also an agent that is purely imaginary may be invented *ad hoc*, and the cause may be identified, not only with an agent that is no agent for the purpose in view, but even with an agent that does not exist.

The attribution of causation to agents that have no existence except in the imagination of the searchers after cause appears *a priori* unlikely, but in experience it is frequent enough. Gardeners attribute canker in fruit trees to the action of sourness in the subsoil on the roots of the trees, but there is neither proof nor evidence that the subsoil is sour. I have myself tested the soil three feet below a badly cankered fruit tree, and found no acid reaction; but this is, I am pretty sure, the only attempt that has ever been made to test the subsoil for sourness. The spiritualistic medium accounts for the table rapping out a wrong answer, by the existence of a lying spirit *in the table*; but there is no proof and no evidence that the spirit of the medium has entered into the table. The Mendelian accounts for feeble-mindedness in other people by the transmission of a unit-character from the parents of the feeble-minded; but there is no proof and no evidence of the existence of a unit-character in either parents or child. Perhaps the most remarkable and the least justifiable of these imaginary agents is that of the psycho-analyst. He assumes that the cause of your forgetting a word is some unpleasant association of the word in your mind. In fact, in most cases there is no evidence of any such unpleasant association; but the psycho-analyst, like the spirit rapper, is equal to the occasion. He says the very fact, that you cannot remember any unpleasant experience connected with the word, is itself proof that you have had such an experience; for, being unpleasant, you have thrust it out of your mind. The less you remember it, in fact, the more certain it is that you are wilfully putting it out of your mind, and the more you wilfully put it out of your mind, the more certain it is that the remembrance is unpleasant. In short, the less evidence there is that you have had such an experience, the more certain it is that you must have had it. Deny that you have wilfully put out of your mind either the word you have forgotten or its unpleasant association, and still the psycho-analyst is ready for you. Your will was exercised unconsciously. Manifestly, by such means as this one could prove anything. What cannot be accounted for by uncon-

scious volition is accounted for by repressed sexual passion, the existence of which is assumed with a similar disregard of the necessity of evidence. It is another imaginary agent. It would be tedious to enumerate but a tithe of the imaginary agents that have been invoked as causes of phenomena. They range from the sour subsoil of the gardener, through the repressed complexes of the psycho-analyst, the Social Contract of Rousseau, and the archæus of Paracelsus, to the hypostatized Ideas of Plato.

The imaginary agent invoked as a cause was the *causa non vera* of the Scholastic writers.

(3) Next in gravity of error to imagining an agent that is imaginary is to take for a cause an action that is imaginary. Though not quite so grave or so gratuitous a blunder as the last, this is bad enough, and it is extremely frequent. It is the error that underlies judicial astrology, and the greater part of the bewildering lore of amulets, mascots, omens, talismans, phylacteries, and lucky and unlucky things of all descriptions. Astrologists declared, yes, and still declare, for there are still survivors of this queer class of believers, that the position of the planets at the moment of a man's birth determines the whole course of the subsequent life of the 'native.' The planets do really exist. They are not mere phantoms of the imagination, like the lying spirit of the table or the unconscious pain of the psycho-analyst; and having a real existence, they are agents in some respects and towards some things. They act, for instance, on their satellites, and on one another. But there is not a smidgeon of evidence that they act upon the course of human lives in the way the astrologers imagine. Similarly, charms and amulets, and the whole apparatus of popular superstitions, do exist as material objects; and having a real existence, they are capable of action of some sort, if only by their weight; but there is no evidence that they exert the action that is attributed to them by popular fancy.

It is common to find that people who go to warmer, damper, and more low-lying places sleep more and are less energetic than they were when at home; and it is common to find that people who go to colder, higher, and drier places appear to gain energy and to be capable of more exertion. These effects are always attributed to the action of the air in such places, which is said to be 'relaxing' in the one case,

and 'bracing' in the other. There is no evidence that the air has any such action, or that there is any difference in the air of the one place and the air of the other. Not seldom places of the two different qualities are near together, and the wind frequently blows from the relaxing place to the bracing place, and *vice versâ*. It is most improbable therefore that the air in the one place is appreciably different from the air in the other; and if a difference were found, it would still remain to be proved, by one of the twelve methods set forth in the last chapter, that this difference has or can have such an action on the human body as is attributed to it:

Many temporary and obscure ailments are attributed, not only by the laity, but by some medical practitioners, to 'a sluggish action of the liver,' or to 'a chill on the liver.' The actions of the liver are many, and are imperfectly known, but in the cases in question there is not a shadow of evidence that any one of them is being performed less actively than usual, nor is there any evidence that the liver has been chilled. The liver is deeply seated, and is covered by thick layers of muscle, bone, skin, and other structures, and could not possibly be chilled unless the temperature of the whole body were reduced; and if it were, there is no evidence whatever that such lowering of the temperature of the liver could produce the effects that are attributed to it. Many drugs are advertised and taken for the purpose of purifying or cooling the blood; but apart from the want of evidence that the blood of the person taking them is impure, or is unduly hot, there is no evidence whatever that these drugs exert any purifying or cooling action upon it.

Gardeners and rustics commonly attribute changes in the weather to changes in the moon, which are really changes in the relative positions of moon, earth, and sun; but that these relative positions have any influence upon the weather there is no evidence to show.

At a certain spiritualistic seance at which Dr. (now Sir James) Crichton Browne was present, 'manifestations' occurred until he so plugged the eyes and ears of the medium that the medium could neither see nor hear; then the manifestations ceased. At the end of the sitting, a believer who was present attributed the cessation of the manifestations to 'the offensive incredulity of Dr. Crichton Browne.' There was no evidence, however, that this mental attitude of the sceptic exerted any action upon the medium, or upon the spooks who were supposed to be in

relation with the medium ; while there was another action of Sir James' upon the medium to which the effect might well have been attributed.

When the Hawke rammed the Olympic in the Solent, those on board the Olympic attributed the change in the course of the Hawke to the action of starboarding her helm ; but it was proved at the trial that this action was imaginary : the Hawke had not starboarded her helm.

The mistake of attributing as a cause an action that is entirely imaginary is as old as humanity, and shows little sign of becoming less frequent, although the most impressive exposure of it that has ever been made is three thousand years old. It is to be found in the Wisdom of Solomon, XIII, 11, and runs as follows :—

'Now a carpenter that felleth timber, after he hath sawn down a tree meet for the purpose, and taken off all the bark skilfully round about, and hath wrought it handsomely, and made a vessel thereof fit for the service of man's life ;

'And after spending the refuse of his work to dress his meat ; hath filled himself ;

'And taking the very refuse among those which served to no use, being a crooked piece of wood, and full of knots, and hath carved it diligently when he had nothing else to do, and formed it by the skill of his understanding, and fashioned it to the image of a man ;

'Or made it like some vile beast, laying it over with vermilion, and with paint colouring it red, and covering every spot therein ;

'And when he had made a convenient room for it, set it in a wall, and made it fast with iron ;

'For he provided for it that it might not fall, knowing that it was unable to help itself ; for it is an image, and hath need of help ;

'Then maketh he prayer for his goods, for his wife and children, and is not ashamed to speak to that which hath no life.

'For health he calleth upon that which is weak ; for life he prayeth to that which is dead ; for aid humbly beseecheth that which hath least means to help ; and for a good journey prayeth of that which cannot set a foot forward ;

'And for gaining and getting, and for good success of his hands, asketh ability to do of him that is most unable to do anything.

'Again, one preparing himself to sail, and about to pass

through the raging waves, calleth upon a piece of wood more rotten than the vessel that carrieth him.'

No doubt it will startle the ecclesiastically minded ladies who throw some of the spilt salt over their shoulders to avoid disaster, to know that their attitude of mind is the same as that of the idolater.

(4) The action attributed as a cause may not be on the thing in which the effect is produced.

This is the fundamental error of witchcraft, of spells and charms, and many other superstitions. Witches undoubtedly existed: the agent was not imaginary. Nor was the action imaginary, for the witches did undoubtedly exercise their craft. They did cast spells and execute incantations, they did say the Lord's prayer backwards, they did make wax figures, and stick pins in them, and exercise in other ways the craft of the witch; and these things they did in order to influence the weather, to produce illness and misfortunes to their neighbours, to make their cattle slip their calves, their children have fits, and to cause other effects. But the gap in the chain of causation was that the action they exercised was not upon the thing they desired to change. Whatever incantations they uttered exercised no action on the weather. The pins which would have produced pain and injury if they had been stuck into the persons of the witches' enemies, were not stuck into their persons; they were stuck into images of them. The action was not on the thing in which the effect was to be produced. The spells that they cast upon the cattle or the children did not act upon the cattle or the children; and if any effects on the various objects followed the witchcraft, they could not have been due to the witchcraft, which did not act on the things in which the effects were produced.

It is currently believed that if you cut your nails on a Friday, or bring a peacock's feather into the house, or cross the knives, or spill the salt, or view the new moon through glass, or do any of a hundred other harmless acts, the action will bring misfortune upon you. In each of these cases there is an action; but in none of them is the action upon the thing in which any unfortunate effect that may follow is produced. You cut your nails on Friday, and on Sunday you put a sovereign instead of a shilling into the offertory. The misfortune happens right enough, but the action was on the nails, not on the sovereign

You bring a peacock's feather into the house, and in the following week your child at school is attacked by measles; but your action was on the feather, not on the child. You spill the salt, and next day your horse casts a shoe, or your motor tyre bursts at an inconvenient moment; but your action was on the salt and the tablecloth, not on the horseshoe or the tyre.

A certain Irish tenant tried to diminish what he considered his landlord's rapacity by shooting the landlord's agent; but the action, strenuous though it was, was not directed at the thing, the landlord, that the tenant desired to alter, and was therefore ineffectual; and so the landlord explained. 'If you think' said he 'that you can intimidate me by shooting my agent, you are very much mistaken.'

An old woman who had the reputation of a witch acquired a large practice by uttering a certain spell, to which immense efficacy was attributed by her neighbours, who willingly paid her for it the fee that she demanded, which consisted of a loaf and a penny. At length her practices reached the ears of the authorities, who seized her and threatened to tie her thumbs and great toes together, and to duck her in the horse-pond, *secundum artem*, unless she revealed the spell by which the wonders were worked. I trust I do them no injustice if I surmise that the authorities would not have been unwilling to have in their own hands an instrument of such power. Under this duress the poor woman consented to reveal the text of her spell, which ran, so she said, as follows:—

Thy loaf in my lap,
Thy penny in my purse;
Thou art never the better,
And I am never the worse.

It seems unlikely that the action of uttering this could have had the causal influence with which it was credited, and the same may be said of all spells and incantations, whether of witches or of psycho-analysts.

(5) The action on the thing changed may have no connection with the change.

To attribute an effect to an action with which it has no connection is a blunder, and a very frequent blunder, but it is a much more pardonable blunder than any that we have considered hitherto. As we have seen in the seasonal variations in

the frequency of suicide, it may be impossible to trace the nature of the connection, even when the facts render a connection of some kind certain ; and experience of such cases might well lead us to suppose a connection when the nature of the connection is obscure. But the error we are now examining does not rest on experience of such cases, and does not consist in inferring a connection that is obscure : it consists in inferring a connection without sufficient evidence. The seasonal variation of suicides, the concurrent variations of sunspots and magnetic storms, and many other instances, show that to establish a connection it is by no means necessary to discover the nature of the connection ; but it is necessary to establish, by one of the twelve methods described in the previous Chapter, that there is a connection, or causation cannot properly be inferred.

It is evident that the fallacy in all the previous cases that have been examined lies in the absence of any connection between an action and the change or unchange in the thing acted on. Such a connection is necessarily absent when the supposed action is that of an imaginary agent, such as acid in the subsoil, or unconscious pain, or a Social Contract ; or is itself imaginary, such as the supposed action of the planets on human life, or that of a chill on the liver ; nor can there be a connection between an action and an effect if the action is on something other than that in which the effect is produced, as when witches stick pins into the effigy of a person they desire to bewitch, or a tenant shoots the agent in order to affect the landlord ; in all these the connection is wanting, but is not the only thing that is wanting. There remain still other cases in which an agent that actually does exist, exerts a real action upon the thing on which the effect is produced, and yet we are not justified in regarding it as a case of causation, for want of evidence, such as is required by the Methods described in the last Chapter, of connection between the action on the thing and the effect produced in that thing. In these cases, since so many more of the conditions of causation are satisfied, and the last link only is wanting, the error is less enormous, and may easily be committed by those who have sense enough to avoid the greater errors ; while, on the other hand, those whose mental equipment is insufficient to save them from the greater blunders are scarcely likely to avoid the less.

The opportunities for committing the error now under con-

sideration are perhaps greater in medical practice than in any other range of observation. When a drug is administered to a person who is ill, and thereafter the symptoms change for better or for worse, it is difficult not to assume that the administration of the drug was the cause of the change, especially if the change is in the direction of improvement. In such a case all the gross errors are eliminated. The agent, the drug, does exist; it does exert action; its action is upon the thing, the body of the patient, that changes; and moreover the action definitely precedes the change. All these conditions are satisfied, but we are still in doubt, or ought to be in doubt, whether the action of the drug was the cause of the change in the symptoms; for connection between the action and the change is not established.

There is a widespread notion, dating from the battle of Waterloo, that the firing of heavy guns is a cause of rain. The firing of heavy guns does produce an action, and a powerful action of its kind, upon the thing, the atmosphere, in which a change occurs when it begins to rain; but no connection has been shown between the cause and the effect. At the battle of Waterloo, and no doubt many times before and since that battle, there was an association between the cause and the effect: but in the first place, the alleged cause did not precede the effect, for it had rained heavily for several days before; and in the second place it has never been shown, A, that the action was isolated—that it was the only action upon the atmosphere at that time—; nor, B, that the association is constant—that the firing of heavy guns is always followed by rain—; nor, C, that it is followed by rain more frequently than casual association would account for; nor, D, that there is any peculiarity in the rain that falls after the firing of heavy guns, that is constantly present in such rain, and absent from other rain. We may therefore confidently assert that the firing of heavy guns has not been proved to be a cause of rain.

The fallacy of arguing *post hoc, ergo propter hoc* is so frequent and so well recognised that further illustrations are not needed, but what is needful is to point out, what never has been pointed out, viz.: why it is a fallacy when it is fallacious. For it is not always fallacious. Quite the contrary. In every case in which a cause acts and produces a change, the effect follows the cause, and is both *post hoc* and *propter hoc*; and in those cases in which the effect immediately follows the cause we argue

propter hoc because of the immediacy *post hoc*, and on no other ground. It is only when an interval of time elapses between the action and the effect that there is opportunity for fallacy to enter into the reasoning; and whenever the interval is short, the fallacy is extremely alluring and extremely frequent. Nevertheless, it has been recognised as a fallacy for two thousand years, and yet, in the face of this common knowledge, Hume and Mill, and all their followers down to the present hour, have taught that causation is nothing but sequence—invariable sequence it is true, but still, invariable sequence and no more.

What constitutes the argument *post hoc, ergo propter hoc* a fallacy when it is fallacious, is, of course, the absence of any proof of connection between the action that is *ante* and the effect that is *post*. This is the element that must be added to mere sequence in order to transform it into causal sequence; and this is the element that Hume perversely denied, and that Mill and all his followers have failed to appreciate, although in every case of causation that they witnessed throughout life it must have jumped at them and hit them in the face. When the sequence is instant and immediate, we argue connection from sequence alone: in other cases it must be proved by one of the methods set forth in the last Chapter, on the Methods of Ascertaining Causes, for each of these methods is a method of establishing connection between action and effect. Until a connection is established, that which is *post* can never safely be assumed to be *propter*: as soon as the connection is established, causation is proved. Of course, if causation were mere sequence, or invariable sequence, or unconditional sequence, whatever that may mean, the argument *post hoc, ergo propter hoc* would not be fallacious; but the very same writers who declare that causation is nothing but sequence insist in another chapter that to argue from *post hoc* to *propter hoc* is a notorious fallacy.

(6) The action may not precede the effect if it is a change, or be contemporaneous with it if it is an unchange.

Of all the errors in attributing causation this is the most difficult to avoid, and the most pardonable when it is incurred. In some cases it is so difficult to determine precedence that the only justifiable course is to suspend our judgement; but this course, always difficult, seems to be most difficult in attributing causation. In many cases the action, which is

the cause, arises so gradually that it is difficult to fix its position in time; and the change also that its effects may be spread over a considerable duration, so that the cause and the effect are for part of their duration contemporaneous, even when the effect is a change. When the effect is an unchange, contemporaneousness may be difficult to establish; and when the effect as well as the cause is an action, as it sometimes is in the case of an unchange, cause and effect are reciprocal, and which is to be called cause, and which is to be called effect, depend on the way in which they are contemplated.

Was his excessive drinking the cause of his insanity? Granted that the proper association is established, so that we may be sure there is a causal connection between the drinking and the insanity, then the answer to this question depends on which came first. If the drinking preceded the insanity by months or years, that settles the question; but supposing that he did drink heavily for a short time before the insanity was recognised, is it certain that the insanity was recognised as soon as it existed? One of the earliest symptoms of insanity is defect of self-control, and defect of self-control is a condition that favours excessive drinking. Insanity in the early stage is often difficult to detect, and to be sure of. Is it not possible then, that the excessive drinking was rather an early symptom than a cause of the insanity?

A certain game becomes popular, and about the same time a book upon it is published. It is said that the publication of the book is the cause of the game becoming popular, but may it not be the other way about? A book is not often published unless there is a public to which it appeals, and the existence of such a public is just the thing to stimulate an enterprising publisher. In such a case we must ask which came first, but this cannot be determined with certainty. The date of publication of the book can, indeed, be determined with accuracy, but how are we to determine when the game became popular? Attaining popularity is a gradual process, and may spread over months or years. In such a case we must suspend our judgement pending further information, and it may be that the matter cannot be determined.

Increase of population has been said to be a cause of taking inferior and hitherto uncultivated land into cultivation; and reversely, the taking of such land into cultivation has been said to be the cause of increase in the population. Which is

correct? It seems that the only way to determine is to discover which was first; but by the nature of the case this cannot be discovered, for both are slow and gradual processes, having no definite time of beginning.

Is the failure in the flow of the sap the cause of the death of the leaves in autumn? or is the death of the leaves the cause of the failure of the sap to rise? or are they not common effects of some other cause? In this case again, the causal connection is established; but again it is quite impossible to say whether the slackening of the sap-flow precedes the beginning of the death of the leaves first to die, or whether the gradual death of the leaves precedes the gradual failure of the sap-flow. But in this case we can call experiment to our aid. We can ring the tree, and so stop the flow of sap; and then we find that the leaves do in fact die, but they die in a very different manner, and the tree dies too. Or we may strip the tree of leaves and see if the sap ceases to flow; and when the experiment is tried, we find that the sap does not cease to flow, for the naked branches bud again. In this case, therefore, we may confidently assert that the death of the leaves and the failure of the sap-flow are common effects of some other cause.

Is the formation of the heavy rain-drops of a thunderstorm the cause or the effect of the electrical disturbance? If we could tell which change preceded the other we should have no doubt; but this we cannot tell.

Syphilis is said to have been introduced into Europe in April, 1494, by Pedro Boyle and Pedro de Margarit, the first a Benedictine monk and the second a Calabrian gentleman, both of whom accompanied Bartholomew Columbus, the brother of Christopher, in his voyage to and from New Hispaniola. On the other hand it is alleged that the disease had long existed in Europe, and even that Egyptian mummies have been found with the signs of the disease upon them. If the latter assertion is true, the former is a false attribution of causation.

It appears from the foregoing considerations that even when we employ our nine or twelve canons for ascertaining causation, we cannot always be successful; and when we can successfully establish a causal connection between two events, we cannot always determine which is cause and which is effect, or whether both may not be effects of some third action.

(7) The last error in attributing causation is that a condition may be mistaken for a cause.

This is a blunder that is very commonly made : it is perhaps the most frequent of all the blunders that are made in assigning causes ; and fortunately it is the least important. If we discover that a certain percentage of potash in the soil is necessary to obtaining the maximum crop of potatoes, it does not greatly matter, from one point of view, whether we speak of the application to the soil of so much potash as the cause of a bumper crop, or of the presence in the soil of the potash as the cause ; though of course the latter, as a passive state, is a condition, not a cause, of the crop being a bumper crop. On the other hand, to call a man's sex, or age, or the locality or climate in which he lives, a cause of his disease, is clearly a misnomer, and shows a confusion of mind : and it can never be as important, with reference to the causation of his disease, to discover his age or sex as to discover that which acted on him.

Though a condition is not a cause, and though the difference between condition and cause is often conspicuous and important, yet there are many cases in which the distinction is not important, and many in which it is quite as important to discover the conditions of an effect as to discover its causes. The external causes of the growth of plants are few, and are ascertained. They are the action of warmth and light upon the plant ; but the conditions under which a given plant will thrive are often extremely difficult to ascertain. There are certain plants that seem to be animated by feminine caprice. Side by side in the same garden, in the same soil, in the same aspect, subject, as far as we can discover, to the same conditions in every ascertainable respect, one plant of *tropæolum speciosum* will thrive luxuriantly, and another will dwindle and perish. The sciences of agriculture and horticulture consist almost wholly in the study of conditions. Obviously, a passive state is by its very nature less conspicuous than an action, and therefore the discovery of a condition is almost necessarily more difficult than the discovery of a cause.

It is often as important to discover a condition as to discover a cause, and for this among other reasons, that the discovery of a condition often points to a cause, or enables us to eliminate an action or an agent that we have thought of as causally concerned. The researches of Wells into the cause of dew con-

sisted in identifying one after another the conditions under which dew is deposited, and those which interfere to prevent its deposition; and when these were ascertained they pointed straight to the causal action, namely refrigeration of the stratum of moist air in contact with the bedewed surface, the only action common to all the conditions. One of the conditions of the occurrence of a strong wind is a low pressure of air, as indicated by a low barometer; and this points straight to the cause—the action of the pressure of the air in a neighbouring region of higher pressure. A motor-car runs better after it has been running for some time, and again the condition points to the cause; for the only action that has taken place in the interval has been the action of the engine and moving parts on themselves and each other, and this action, whatever other effect it may have had, must have had the effect of warming up the engine and other moving parts; and it can be shown *a priori* that warming them up is likely to improve the running of the car.

On the other hand, the discovery of a condition may assist us in eliminating an action or an agent that we have thought of as possibly having a causal connection with the effect. A man is suspected of having committed a certain burglary, but it is found that one of the conditions of the burglary, the window through which the burglar is known to have entered, is incompatible with this man's action, for it is too small for him to get through. It is surmised that sourness in the subsoil is the agent that causes canker in fruit trees; but one of the conditions in which the tree grows is the presence of chalk in the subsoil, and chalk is incompatible with sourness. It is suspected that the ship was lost in obedience to the orders of the owners, that they might claim the insurance money; but it is discovered that the ship was under insured.

Again it is often important to discover a condition for its own sake. The cause may be well known, but the conditions under which it acts may be obscure, and in that case it is important to discover the governing conditions; and these are the cases in which it is usual to call the enabling condition the cause. No harm is done in practice by the confusion of nomenclature, but still, the confusion is there, and accurate thought expressed in accurate language would clear it up. It is, however, as prevalent in books on logic as among plumber's labourers. We speak of the absence of a damp-proof course in the walls

of a room as the cause of the room being damp. Strictly speaking the effect is not the room being damp, but the room becoming damp; and the cause of this is the action of the moisture from the soil, creeping, by capillary attraction and other forces, up the walls. One condition of this penetration of moisture into the wall is the absence of a damp-proof course; and so we speak of the absence of this course as a cause of the room being damp. It is not a cause. The absence of a thing cannot possibly be a cause. It is a condition. If there were a damp-proof course in the wall, the moisture could not penetrate that course, and could not rise above it; and the wall not becoming damp, the room would not become damp. Still, for practical purposes we call the absence of the course the cause, because we know now what prevention to apply, and where to apply it. What is the cause of the oven not getting hot? The cook will tell you it is the door or the window being open; but these are passive states, and therefore conditions, and not causes. The cause is the action of the draught of cold air; and this is not caused, but permitted, by the door or the window being open. If she said that the opening of the door or of the window was the cause of the oven being refractory, she would be punctually correct, for this, though not the proximate cause, was the cause of the proximate cause, and therefore a cause of the effect. A cause is an action, and an effect is a change or unchange. But when the result of an action upon a thing is to produce a change, the changed state or result may be a condition of further change in that or other things. In the instances just given, the confusion of cause with condition is not important for the purpose of the cook, or of the builder who is called in to remedy the dampness of the room, but it is important for the logician who is discussing the nature and relations of cause and effect, and the rules for discovering them. The importance of the distinction appears very plainly in the indescribable muddle that, for lack of it, appears in the books that discuss these subjects, *omnes libros canentes eandem cantilenam*, as Van Helmont says.

Summary.

In order to prove causation it is necessary to prove

- (1) Action on the thing on which the effect is produced.
- (2) Precedence of the action on the change, or accompaniment of the action with the unchange.

(3) Connection between the action and the effect.

In thus endeavouring to prove causation, the following blunders are committed :—

(1) An agent may be taken for an action.

(2) The agent may be imaginary.

(3) The action may be imaginary.

(4) The action may be real, but not on the thing changed or unchanged.

(5) The action may be on the thing, but unconnected with the effect.

(6) The action may not precede the change or accompany the unchange.

(7) A condition may be taken for a cause.

The first blunder is frequent, but not often very important. The second is the worst of all, and is not made except by the most muddleheaded. The next is nearly as bad, and the rest decrease in importance in succession until the last is often practically unimportant, though it is one which a clear thinker would never make.

CHAPTER VIII.

CAUSES OF DEATH. CAUSES OF INSANITY.

How great is the need of clear and correct concepts of cause and effect, and how great, too, the need of a knowledge of the proper methods of ascertaining and assigning them, is well shown by the official publications on the causes of death and of insanity. The Registrar General and the Board of Control annually publish elaborate Tables, from which it is evident that neither of these authorities has any clear notion of what is meant by a cause, or of the means that should be adopted to verify causation. Both authorities publish as causes what are not causes, and both authorities have altered from time to time the construction of their Tables without improving materially their illogical character. The Board of Control, the successor of the Lunacy Commission, has followed its dignified predecessor in frankly abandoning the attempt to distinguish causes of insanity, not only from its conditions, but even from its accompaniments. This seems to me a deplorable admission of incompetence. The old Table, that did at least purport and pretend to be a Table of Causes, is now superseded and replaced by a Table of *Ætiological Factors and Associated Conditions*. '*Ætiological Factors*' would not be a bad term if it were intended to embrace causes, direct and indirect, immediate and remote, as well as conditions. It is a sound, logical, comprehensive term, which might properly be employed to include all these things; but I am sure that I do no injustice to the Committee of the Medico-Psychological Association which drew up the Table and gave to it its title, when I say they had no such meaning and no such intention. There is not the least doubt that their reason for giving to the Table this new title was to seek in vagueness a refuge from uncertainty. They did not know what constitutes a cause, nor did they know the rules or methods by which causes should be assigned; and small blame to them, for philosophers could not tell them, and if they knew, which is improbable, of the various definitions of

cause given in the books, they had the good sense to disregard them. They collected a hotch-potch, whose constituents they were unable to discriminate from one another, and they selected a title that is a dignified name for a hotch-potch. If it is objected, as it well may be, that many of the items in the Table are not Causes nor *Ætiological Factors*, they can reply that at any rate they are Associated Conditions, and thus silence that criticism. It is true that they lay themselves open to the much more damaging criticism that such a hotch-potch is of no conceivable use to any human being ; but this, perhaps, they did not foresee.

I. CAUSES OF DEATH.

The Registrar General divides causes of death into Primary causes and Secondary causes ; and it is significant of the validity of the distinction that at different times he has defined them in different ways. Originally, in 1845, the instruction of the Registrar General was : 'Write the causes of death in the order of their appearance, and not in the presumed order of their importance.' As he did not mean primary and secondary, that is to say, first and second in order of importance, it is a pity that he used these terms ; and as he meant first and second in the order of time, it is a pity that he did not use terms, like first and second, or earlier and later, which would have expressed accurately what he did mean. However, some of the medical practitioners to whom the forms were issued persisted in assuming that the Registrar General meant what he said, and accordingly returned as primary cause of death that which they considered more important, and as secondary that which they considered less important. As this practice grew and increased, the statistics naturally lost in value, and became much confused, so that it might have been supposed that the Registrar General, who recognised and deplored the confusion, would have revised either his formula or his instructions. In fact he did neither. He allowed the terms to remain, and withdrew his instructions altogether, leaving the certifiers to interpret his terms as they pleased. This happened in 1902, and for the next nine years medical men who certified causes of death were left to their own discretion, to interpret primary and secondary as they pleased. The result, which is creditable to the doctors, was that most of them interpreted the terms

in their proper sense, 'as first and second in the order or importance.

In 1893, a Select Committee reported on the subject, and advised that if the terms primary and secondary were retained, they should be defined 'as meaning the order of the development of the diseases as they occurred,' that is to say that the Registrar General should revert to the former vicious practice of defining the terms in a sense that is false, and that they cannot properly bear. The Registrar General did not take this advice. As I have said, he withdrew the instructions, and left the doctors to do as they pleased; and then, after a decent interval of nine years, he directed that the primary cause of death was to be considered 'that cause of death which was of greatest importance and upon which any other related causes were dependent.'

It is unfortunate that the Registrar General, following the example of Mill, whose teaching has so long been dominant in the matter of causation, is not able to make up his mind about the meaning of his terms, and gives several definitions, which are not only unsatisfactory, but are inconsistent with each other, and even with themselves. In his Suggestions to Medical Practitioners, he defines primary cause of death (in the case of deaths from disease) as 'the disease, present at the time of death, which initiated the train of events leading thereto, and *not* a mere secondary, contributory, or immediate cause, or a terminal condition or mode of death.' In a footnote he adds: 'Acute specific diseases, if of recent occurrence, are to be considered the primary cause of death, even though the actual disease, as tested by the power of infection, be no longer present at the time of death.' Thus he warns us that his cardinal test of what is primary may be no test at all. He takes back with one hand what he has just given with the other, and leaves us in confusion. If we turn to the remainder of the definition for guidance we are no better off, for it does not help us much to understand what is meant by a primary cause of death to be told that it is *not* a mere secondary cause. But even in this he is not consistent, for though this contradictory footnote appears in his Suggestions, it is not embodied in the instructions to medical practitioners that appear on the face of the certificate of death. 'Secondary cause' he does not attempt to define, though he warns us that a terminal condition or mode of death should not be entered as a secondary (or con-

tributory) cause ; but as he does not tell us what he means by a terminal condition or mode of death, this does not give us much assistance ; and if he did, it would only tell us what a secondary cause is not : it would not tell us what it is.

In most ordinary cases of causation a cause is a cause ; that is to say, it is one of a train of causes, and if it is omitted, if the train is broken at any point, the effect will not be produced. If the cat does not begin to eat the rat, or if the rat does not begin to gnaw the rope, or if the rope does not begin to hang the butcher, the rest of the effects will not be produced, and the old woman will never get home. The case of death, however, is peculiar. The death of every human being is inevitable, and the utmost that any cause of death can do is to hasten or precipitate a result that must take place some day. For practical purposes, however, we look upon the duration of life as indefinite, and call that a cause of death which is the cause that death, which otherwise would have been postponed, occurs at a particular time. In other words, the cause of death is that which hastens or precipitates an event that would in any case have occurred sooner or later. Now it is evident that the extent or degree to which life is shortened by any cause materially affects our estimation of the cause. If a man is already so ill that his life is despaired of, and he may die any hour, we scarcely regard as a serious or important 'cause of death' the dose of morphia that not only relieves his pain, but overpowers his enfeebled respiratory centre, and accelerates his death by a few hours at most. We should not in such a case enter poisoning by morphia as a cause of death. On the other hand, if a young man in robust health, whose expectation of life is thirty or forty years, were to die with symptoms of narcosis after a large dose of morphia, we should unhesitatingly enter, as the cause of his death, poisoning by morphia.

We may look upon the living animal as a clock, wound up at conception to go for a certain maximum time. When death occurs, the clock stops ; but, apart from disease and accident, the clock will not stop until it runs down—until the spring has unwound itself and its resilience is exhausted. When this happens, the clock must stop. For the first years of life the spring has double work to do. It has not only to keep the clock going, but also to build it up in bulk and complexity. When this task slackens and ceases, the whole energy of the spring is

devoted to keeping life going, and therefore early adulthood is the time of greatest vigour, and the time when the attacks of disease are most easily repelled. As the tension of the unwinding spring diminishes, less and less serious interference suffices to stop the clock. When it is fully wound, the power of the spring will drive the clock even though the pivots are lubricated with cart-grease; when it is nearly run down, a slight thickening of the oil on a frosty night will arrest the action. So it is with human life. In early adulthood, the motive power is abundant, and it takes much interference to stop the clock of life; but as age advances, the power of living weakens and fails, until at length in extreme old age, which is to be measured not by years only, but rather by the amount remaining of the initial store of energy, a very trifling obstruction, an obstruction so trifling that we cannot identify it, is enough to be a 'cause of death.' It may be in some cases, such as that of the first Duke of Wellington, that the clock merely runs down, and there is no more to be said. The Registrar General deprecates the return of old age as a cause of death, but in such a case as that of the Iron Duke it is difficult to see what more accurate return could be made.

Properly considered, life is what I have called an unchange. It is the maintenance of a continuous state in spite of opposing forces which tend to terminate it. A cause of death is an action that removes one or more of the conditions maintaining the unchange, and allows it to be brought to an end. Life is maintained with effort and with striving, and subject to certain conditions. Any interference with any of these conditions increases the difficulty of maintaining life; interference with a second condition, or further interference with the same condition, further increases the difficulty; and the concurrence of two or more interferences may increase the difficulty to the point of impossibility. In this way there may be several causes simultaneously tending to bring life to an end, and it may be very difficult in a given case to say how much of the effect is due to one cause, and how much to another. The effect is death, and it is incongruous to speak of part of death being produced by one cause and part by another; nor is it much less incongruous to speak of death as being partly due to one cause and partly to another. In such a case it is the combination of causes that produced death, and if this is so, and if

neither of the causes acting singly would have produced it as and when it happened, can we rightly say that one was a more important cause than the other? Which is the more important cause of the discharge of a gun—the loading of it, or the pulling of the trigger? This case is scarcely on all fours, however, with the case of death. If one cause would have produced death sooner or later, and the cooperation of a second caused the death to take place sooner, then I think the former may be considered the more important, the less the anticipation produced by the latter.

The cause of death is always a function of two variables—the power acting to maintain the unchange that we call life, and the action or actions that increase the work that the power has to do. To recur to the simile of the clock, the time of death depends on the amount of resilience left in the spring and the amount of friction in the works that must be overcome. If this friction is materially increased at more than one place in the train, then each increase is a separate cause of the stopping of the clock. The less the power or means of living, the less interference with the processes of life necessary to bring life to an end; the greater the life-worthiness, the more powerful must be the interference necessary to cause death.

Again, the living body may be likened, and the likeness is more than a mere simile, to a besieged fortress. It is constantly subject to the assaults of microscopic enemies, who are trying to obtain a footing, but are repelled as long as the garrison is strong enough. If the fortress is attacked by a single foe strong enough to break down its defences and capture it, then the action of that foe singly is the cause of the fall of the fortress. But it may be that while engaged in repelling one invader, which is not strong enough alone to capture it, the fortress is attacked by another, and the combined assault succeeds. In such a case the cause of the capture is the combination of assaults. Or it may be that the garrison is completely successful in repelling one assailant, but at such a cost that it falls a prey to a second, of perhaps inferior power, which succeeds in consequence of the exhaustion of the defenders. In such a case the second attack was the cause of the capitulation, but the exhaustion left by the first was a necessary condition.

If we use the term Cause, with a capital, to include both

cause and condition, and cause, with lower case, to mean a true cause or action as distinguished from a condition, then I think the Causes that may combine to produce the death of any individual man may be combined in any of the four following ways :—

Case I. The first Cause is a cause of the second ; or, otherwise put, death is due to some particular manifestation of a disease, which, without that manifestation, might or might not have been fatal. A man suffers from typhoid fever, from which he might recover, but that the fever causes a perforation of the bowel, which kills him. He might recover from his rheumatism, but for endocarditis which is a manifestation of the rheumatism. He might recover from his endocarditis, but for an embolism which is caused by the endocarditis. He suffers from phthisis, which might endure for years but for an hæmoptysis, which is rapidly fatal. He suffers from diabetes, and the diabetes causes coma, which ends in death. He suffers from general paralysis, and dies in *status epilepticus*, which is a manifestation of the general paralysis.

The fatal manifestation of a disease is, I surmise, what the Registrar General means by a terminal condition or mode of death ; but as he gives no indication whatever as to what he does mean, this can be no more than a surmise. In such cases the disease may appropriately be called the Principal cause of death, and the manifestation the Precipitating or Subordinate cause of death.

Case II. The first Cause is not the cause, but is a necessary condition of the second. It is necessary in the sense that without it the cause could not have come into operation. A person suffers from a compound fracture, which becomes complicated with pyæmia, of which he dies. The fracture is not the cause of the pyæmia. The cause of this is infection with the appropriate coccus ; nevertheless, this infection would never have taken place but for the existence of the compound fracture, regarded as a continuing passive state—as a condition. It is not the occurrence or action of the fracture that produces the infection, and therefore the fracture is not the cause of the infection ; but without the existence of the fracture the infection could not have occurred. The fracture is a necessary condition of the pyæmia which is the cause of death. Or a man suffers a chill, which so diminishes his powers of resist-

ance that the pneumococci, that before were harmlessly present in his body, are now able to make an effectual attack, to invade his lungs, and to cause pneumonia, of which he dies. Regarded as an action on the body, and it is quite legitimate so to regard it, the chill is a cause of death ; but it is not the cause of the pneumonia. The cause of the pneumonia is the invasion of the pneumococcus, and of this invasion the chill was a necessary condition. But when we regard the chill as a condition, we do not regard it as an action ; we regard it as a passive state ; and as a passive state it is a necessary condition of the attack of pneumonia, for without the existence of the chilled state of the body the infection of the pneumococcus would not have taken place. The chill by itself was not the cause of death. Death would not have occurred from the chill without the aid of the coccus. The pneumonia was the cause of death, but without the chill there would have been no pneumonia.

In such cases we may call the necessary condition the Preparatory cause of death, and the subsequent cause the Consummating cause of death.

Case III. The first Cause is a favouring, but not a necessary condition of the second. Persons who are already suffering from measles or typhoid fever are more obnoxious to the attack of broncho-pneumonia than those not so suffering ; and broncho-pneumonia is more likely to be fatal to those who are already suffering from measles or typhoid fever than to those who are not. Yet measles and typhoid are neither of them a necessary condition of the pneumonia. They are not necessary either in the sense that pneumonia necessarily follows them, or in the sense that one of them must necessarily precede pneumonia in general. Nevertheless, it may be that in any particular case the precession is necessary, and that without it the pneumonia would not have occurred, or would not have been fatal. Still, since it is impossible to say that broncho-pneumonia cannot occur unless it is preceded by measles or typhoid, we cannot say that the specific fever is a necessary condition of the broncho-pneumonia. Persons suffering from diabetes are specially liable to be attacked by phthisis. Diabetes is no necessary condition of phthisis, either in the sense that diabetes is necessarily followed by phthisis, or that phthisis is necessarily preceded by diabetes ; but the frequency with which diabetics are attacked by phthisis

indicates that the existence of diabetes favours the occurrence of phthisis.

In this case again the condition may be called a Preparatory cause, and the subsequent disease the Consummating cause of death.

Case IV. The last case is that in which two causes, neither of which is in any way dependent on the other, combine to bring about a death that neither of them singly might have been able to produce. A man is suffering from heart disease, which does not menace his life as long as the heart is not subjected to extraordinary strain. He is attacked by bronchitis, which would not be fatal if his heart were sound; but the effect of the bronchitis is to put a strain upon the heart that, in its damaged condition, the heart is unable to overcome; and the combination of diseases is fatal. Or he suffers from ague, which by itself might leave him years of life, but that he is attacked by dysentery, which alone would not be fatal, and the combination of the two diseases carries him off.

In such cases one of the two diseases may be found to play a preponderant part in bringing about the fatal issue. In the first of the two instances given above, the heart disease may be regarded as preponderating, and in the second the dysentery. Thus viewed the causes may be called Preponderant and Adjuvant; but it is not easy in any case, and in many cases it is not possible, to assign to either of the diseases a preponderant part; and if it is not practicable, then we can only fall back upon the order in time, and speak of the causes as Earlier and Later.

There are here three pairs of terms that may be used to characterise, in appropriate cases, the several causes of death. They may be characterised as

Principal and Precipitating or Subordinate,
Preparatory and Consummating,
Preponderant and Adjuvant, or Earlier and Later.

If I am right in my surmise that what I have called a Precipitating or Subordinate cause of death is what the Registrar General means by a terminal condition or mode of death, then, as he advises the certifier not to insert the terminal condition or mode of death into the certificate, this cause is ruled out, and in cases in which the causes of death can be distinguished as principal and subordinate, the principal cause

only should appear in the certificate. I should have thought that it would be of value to know the number and proportion of cases in which the precipitating cause of death in typhoid fever, for instance, is perforation, those in which it is hæmorrhage, those in which it is hyperpyrexia, those in which it is exhaustion, and so forth ; but no doubt the Registrar General knows best.

Excluding the pair just dealt with, in the very great majority of deaths in which more than one cause can be assigned, the causes are related in the way I have explained as Preparatory and Consummating, or as condition and cause. Most people, I think, would understand the term 'condition' in the sense in which it is here used, as a pre-existing state, either necessary or helpful to the occurrence of the fatal disease ; and the term Preparatory cause would, I think, be allowed to be a substitute for condition, accurate enough for ordinary use. The term Consummating cause would perhaps scarcely be as readily accepted, but once accepted and become familiar, it would not give rise to difficulty. I do not think there is any other term that expresses the nature of the cause, and its relation to the preparatory cause or condition, with the same accuracy. Immediate cause is ambiguous, and might easily be misleading. It would be very apt to be confused with what I have called the Subordinate or Precipitating cause of death. The terms Primary and Secondary have been found in the experience of many years to be misleading and confusing, and I think they would be better abandoned ; but if they are to be retained, then I think it should be explained that in these classes of cases, Primary means Preparatory, and Secondary means Consummating, in the senses here explained.

When the causes of death are two independent diseases, the difficulty is greatest. If it were possible always, or even frequently, to decide which of them took the greater share in bringing about the death, it would undoubtedly be better to distinguish them as Preponderant and Adjuvant ; but this is unfortunately not often possible. The alternative is to distinguish them by the order in time of their occurrence, as Earlier and Later ; but this distinction is ruled out by the instructions of the Registrar General that are now in force. In a considerable proportion of cases in which two diseases that appear to be independent co-operate to bring about death, we may sus-

pect that the earlier in time does in fact facilitate the attack of the later, and therefore many cases that appear *prima facie* to belong to Class IV may be removed into Class III without doing violence to the facts; but when the case unmistakeably belongs to Class IV, and it is not possible to apportion the degrees of importance among the causes, I do not see how the terms Primary and Secondary can be made applicable except by taking them to mean first and second, which would not only be contrary to the instructions of the Registrar General, but would introduce inexcusable ambiguity and confusion into the meaning of the terms. It seems that there is no single sense in which the terms Primary and Secondary can be used that will cover all the cases of the relation between two causes of death when more than one cause has been in operation; nor is there any other pair of terms that can be used for the same purpose, for the relation is not the same in all cases.

In the tabulation of causes of death, one cause only is entered, and the Registrar selects for this purpose that cause which is 'most important' out of the two or more that are submitted to him by the certifier. Now, it seems from the language used by the Registrar General, and from the whole trend of his remarks, that he looks upon the 'importance' of a cause of death as in the first place an ascertainable quality, and in the second place a fixed quality, a quality that is present or absent, and if present at all, present in some fixed degree which does not vary. This, however, is not so. The importance of anything varies with the point of view from which we regard it. Regarded from the point of view of the hostess of a garden party, or of the farmer whose hay is cut but not carted, the state of the weather is of great importance; regarded from the point of view of the cook, who spends her life in the basement, or the prisoner, who spends his life under cover, the state of the weather is of no importance at all. The cause of death which is important to the doctor who has an hypothesis to test may be of no importance at all to the police; and the cause of death which is important to the police may not have any importance at all to the company in which the life of the deceased was insured. Before we can say that a cause of death is important or unimportant, or estimate the degree of its importance, we must settle the point of view from which the importance is to be regarded. It is more im-

portant, says the Registrar General, that this death, which was caused by the combination of measles and bronchitis, should be registered as death from measles than as death from bronchitis; but why? From the point of view of the doctor who has views about bronchitis it may be very much more important that bronchitis was a cause of death than that measles was a cause of death. If the Registrar General considers that measles is a more important cause than bronchitis, it can only be because for some purpose it seems more important to ascertain the number of deaths in which measles had a share than to ascertain the number in which bronchitis had a share. It is impossible, therefore, to estimate the relative importance of the different causes of death in any given case for the purpose of registration, until we know what this purpose is; and as to the purpose of compiling tables of the causes of death, the Registrar General does not enlighten us. I do not know for certain what this purpose is. I do not even know whether the Registrar General has any one purpose distinctly and prominently before his mind, and I strongly suspect that he has more than one purpose, but does not distinctly formulate to himself what his purposes are. It is clear, I think, that it is impossible to estimate with any approach to accuracy the relative importance of different causes of death until we know for what purpose the information is required, and in what respect importance is to be estimated; and if more than one purpose is to be served by the estimation, it must often happen that more than one estimate of the relative importance must be made. It is clear that no single set of Tables could be compiled from both points of view; and if more than one purpose is to be served by compiling these Tables, the purposes should be clearly before the mind of the compiler, and each purpose should have a separate set of Tables to itself. The suggestion may be a counsel of perfection, and very likely the Registrar General would say that it is impracticable; and with the funds and the staff at his disposal it may be so; but what I have said is true for all that. Relative importance cannot be gauged until purpose is settled; and causes, rightly selected for their importance for one purpose, will be wrongly selected if used for another purpose; and whatever the purpose of the Registrar General in selecting this or that cause of death, he should have it clearly before his mind, and he should stick to it.

II. CAUSES OF INSANITY.

Among the Tables of Statistics issued by the Board of Control is a Table of the *Ætiological Factors and Associated Conditions of Insanity*. The former Table, now superseded, spoke frankly of Causes of insanity, but this term is now replaced by *Ætiological Factors*, which is more vague and more cautious. The table is as follows :

Heredity.	Toxic
Insane	Alcohol
Epileptic	Drug habit
Neurotic	Lead and other such poisons
Eccentricity	Tuberculosis
Alcoholism	Influenza
Mental Instability, as revealed by	Puerperal sepsis
Moral Deficiency	Other Specific Fevers
Congenital Mental Deficiency	Syphilis, acquired
not amounting to insanity	Syphilis, congenital
Eccentricity	Other toxins
Deprivation of Special Sense	Traumatic
Smell and Taste	Injuries
Hearing	Operations
Sight	Sunstroke
Critical Periods	Diseases of the Nervous System
Puberty and Adolescence	Lesions of Brain
Climacteric	" " Spinal Cord
Senility	Epilepsy
Child-bearing	Other Definite Neuroses (limited
Pregnancy	to Hysteria, Neurasthenia,
Puerperal State (non septic)	Spasmodic Asthma, Chorea).
Lactation	Other Neuroses which occurred
Mental Stress	in infancy (limited to convul-
Sudden	sions and night terrors).
Prolonged	Other Bodily Affections
Physiological Defects and Errors	Hæmopoietic System
Malnutrition in early life	Cardio-vascular Degeneration
Privation and Starvation	Valvular Heart Disease
Over-exertion, physical	Respiratory System and Tuber-
Masturbation	culosis
Sexual Excess	Gastro-intestinal System
	Renal and Vesical System
	Generative System, excluding
	Syphilis
	Other general affections not
	above included

The Committee that drew up this Table was cautious, but it was not clear. The Table previously in force was headed and called a Table of the Causes of Insanity; and a queer hotch-potch it was, in which overwork appeared in one place, and over-exertion in another, and a previous attack was entered as a cause of the existing attack of insanity. I had pointed out that several of the 'causes' enumerated in that Table were not causes, and could not be causes of anything, and it may have been my protest which induced the Committee to substitute for the term Causes the term *Ætiological Factors*. The old legal maxim says that fraud lurks in generalities, and to the uncritical it often seems that safety lies in generalities. Certain it is that refuge in generalities is a great saving of thought, and appears a great safeguard against criticism. Any criticism of any item in the Table, based on the ground that it is not a cause, may be met by the defence that it is an *Ætiological Factor*, or at any rate an Associated Condition; and of course it would be difficult to show, if it existed at all, that it was not one or the other. The manœuvre, adroit as it is, has the defect, frequent in such manœuvres, of being too clever by half. It is true that it eludes criticism of the items in the Table, but at the cost of transferring the criticism to the Table as a whole. What is the use of a Table which includes both *Ætiological Factors* and Associated Conditions, and, it may be added, other things as well, and does not distinguish the one class from the other?

Some of the items in the Table are neither *Ætiological Factors* nor Associated Conditions. Mental Instability, for instance, may be sufficiently great to amount to insanity, but then it *is* the insanity, at least it is so in the eyes of the compilers of the Table, to whom insanity means disorder of mind. Mental Instability can no more be an *Ætiological Factor* of insanity, or an Associated Condition of insanity, than a movement of the air can be an *Ætiological Factor* of wind, or an Associated Condition of wind; or than sunshine can be an *Ætiological Factor* of light, or an Associated Condition of light. The movement of the air is the same thing as wind: the sunshine is the same thing as light: and the Mental Instability is, at any rate in the eyes of the compilers, the same thing as insanity. It is in truth a part of insanity.

Again, there are many items in the Table that are not of the

slightest value there, and that make one wonder what on earth they were included for. I conjecture that the Committee was nervous lest anything should be omitted, and therefore put in everything its members could think of. Defect of smell and taste are, no doubt, conditions that may be associated with insanity, and so are baldness and tight boots, a Roman nose and a fondness for pickles; and it is about as useful to know that any one of these is associated with insanity as any of the others. The last two clauses include, or may include, every disease to which humanity is subject, and I can conceive that it may in certain connections be useful to know whether any particular disease is particularly frequent or infrequent among mad people; but I cannot conceive that a disease that may affect a person years before or years after he becomes mad, can have any rightful place in a Table of *Ætiological Factors of insanity*. To mix up with *Ætiological Factors of insanity* conditions that are manifestly only accidentally associated with it seems to me to go out of the way and undertake a laborious task in order to introduce confusion, and destroy what usefulness the Table might otherwise have had.

The influence of Heredity in the causation of Insanity seems to me misconceived, or rather perhaps unconceived, in spite of the explanation that I gave a quarter of a century ago, an explanation which has never been even examined or criticised by any subsequent writer, although it carries a fundamental revolution in the concept of the causation of insanity. Insanity is the breakdown of the human machinery; and when a machine becomes unable to do its work, the reasons cannot be anything but the original construction of the machine and the strains or stresses that it has had to bear. The strains or stresses that it has to bear are actions upon the thing, the human machine or organism, in which the change or effect of insanity is produced; and are therefore rightly called causes; but the constitution of the machine, the way in which it is put together, the stability of its construction, is not an action. It is a passive state; and at the utmost cannot be more than a condition. Indeed it almost requires a stretch of language to call it a condition. The man is the thing on which the action takes place and on which the effect is produced; and the man is the result of his heredity, that is to say of the mixture of the qualities of his ancestors. This mixture is, therefore, at the

utmost the cause of a condition, which means an indirect cause. By the study of the patient's heredity, that is to say of the qualities of his parents and ancestors, we can make a very rough guess at the nature of the thing, the man, upon which a cause acts so as to produce the result insanity, and that is the utmost that a study of heredity can give us.

The causes of insanity, properly so called, are the actions brought to bear upon the man which produce in him the change from sanity to insanity, and the result of insanity. For the purpose of the argument, the man is summarised in his brain; and actions that produce insanity are actions on the brain, which may most conveniently be divided into the direct actions of physical agents, the indirect actions of physiological processes, such as child-bearing, and the still more indirect action of emotion-producing situations of the man in the world around him. This is the natural grouping and classification of the strains or stresses that produce insanity; but for some reasons known only to themselves, writers on insanity refuse to adopt it. I do not know what their reasons are, but I surmise that one reason is that the classification is a clear, useful, and scientific classification, and the other is that it is proposed by me, who am not a German. Had it been proposed by a German, it would have been adopted with acclamation long ago, but no German would be capable of discovering a classification so clear and logical.

However, taking the list—it cannot be called a classification—proposed by the compilers of this table, it will be interesting to inquire into the grounds for the supposition that the alleged causes, or ætiological factors, are in fact causes.

Heredity has already been examined. The next group, Mental Instability, includes no cause of insanity, and nothing that by the utmost stretch of the meaning of words can be called a cause of insanity, or of anything else; for nothing in the group is an action. The same may be said of the third group. Deprivation, by which is evidently meant not deprivation, but absence, of a special sense, is not an action: it is a passive state; and I know of no evidence that, as a passive state, the absence of a special sense is material to the result of insanity; and if not, then it cannot be even a condition.

The next group is composed of critical periods of life; and these come in the class of physiological strains or stresses that

may be causes of insanity, because they undoubtedly are, or may produce, actions on the brain. But what evidence is there that these do in fact exert such action on the brain as may disorder its mode of working, and so produce the change from sanity to insanity? Many people, the great majority of people, who go through these physiological crises do not become insane. Many people become insane at other times than at the times of these crises. On what ground, then, are they regarded as causes of insanity, and what is the justification for so regarding them? These are questions which no writer on insanity has ever answered, or ever asked, or ever considered; but they are questions that demand an answer, for until they are satisfactorily answered, the writers have no business to assume that these crises are causes at all; and the same may be said of all the other alleged causes of insanity. Does the belief that these alleged causes are causes of insanity rest upon the application of Mill's Canons, or of any of them? It certainly does not. No one has ever yet discovered, or ever will discover, two or more cases of insanity that have nothing in common but the circumstance that the patient was going through one of these crises. No one has ever discovered, or ever will discover, an instance in which insanity occurs, and an instance in which it does not occur, which have every circumstance in common except adolescence or senility. No one has ever discovered, or ever will discover, two or more instances of insanity having only adolescence and senility in common, and two or more instances of sanity that have nothing in common but the absence of adolescence or senility; and no one, as far as I know, has ever wasted time in an unprofitable search after such impossible instances. Yet there is a general consensus that these and other physiological crises are causes, or at least occasions, of insanity, a consensus not merely of opinion, but of deep-rooted conviction. What is the justification for the belief? It is to be found in those methods of assigning causes that I have grouped together under the heading of Association. It is found in experience that these physiological crises are associated as antecedents with insanity, not in isolation, not constantly, but either more frequently than casual concurrence will account for, or, when associated, the insanity has some peculiar feature which does not occur in other cases of insanity, not so associated. In other words, the causal connection is

ascertained by the Method IV. C., or IV. D.; and the same methods are employed in almost every case in which causes are assigned for the occurrence of insanity; but not in every case.

In the insanity that is due to drunkenness, and in that which follows immediately or rapidly upon the absorption of other drugs, the first Method, that of Instant Sequence, which in these cases becomes Rapid Sequence, is employed, together with Method IV. A, Association in Isolation. The effect follows rapidly after the action, and so raises a presumption that it is due to the action. The action is isolated: it takes place in circumstances which enable us to say with considerable confidence that no other material action has occurred; and this confirms the presumption. Further, in many cases the association is, in the same person, constant; whenever he takes the alcohol or other drug, the insanity of intoxication constantly follows: when he does not take it, the insanity does not occur. But suppose the association is not constant, or that no opportunity of observing constancy has occurred? Suppose that an excess of alcohol has been taken only once, and that insanity has occurred only once, and then following the drink? Then the Method of Common Rarity is applicable, and is applied. In other cases it is found that a little drink is followed by but slight indications of insanity, and that the more drink is taken the more complete and profound the insanity becomes. In such cases the Method of Concurrent and Proportional Variation confirms our conviction. Commonly, too, the insanity that follows drinking has peculiar qualities that are present in other cases of such insanity, and are not present when insanity is not preceded by drinking; and the Method of Association D becomes applicable. In short, whenever causation is rightly assigned, it is assigned by the application of one or more of the twelve Methods here described; and never by any of the Methods prescribed in Mill's Canons.

SUMMARY.

Causes of Death.

The instructions of the Registrar General require us to distinguish primary from secondary causes of death, but give

us no clear guidance what is to be considered primary and what secondary.

Death is inevitable, and its causes are inherent in human nature. That which we call the cause of death in any individual case is the cause of death happening at the particular time and in the particular way it does. Life is an unchange, and death the cessation of the unchange.

When more than one cause co-operate to produce death, the causes may be combined in one of four ways.

I. The first cause may be a cause of the second.

II. The first cause may be a necessary condition of the second.

III. The first cause may be a favouring condition of the second.

IV. The several causes may be independent.

In the first case the causes may be called Principal and Subordinate, or Principal and Precipitating; in the second case, Preparatory and Consummating; in the third, Preponderant and Adjuvant; and in the fourth, Earlier and Later.

The first three pairs may all be included under Primary and Secondary. The last pair cannot be so included.

The relative importance of different causes of the same death must depend on the purpose the observer has in view.

Causes of Insanity.

The Table issued by the Board of Control rightly does not pretend to be a Table of Causes exclusively; but to mix up causes, conditions, and associated states in the same Table deprives the Table of any value whatever for any purpose; and some of the headings in the Table are neither causes, conditions, nor associates of insanity.

By following the rules laid down in Chapter VI., it might be possible to identify many causes of insanity, and to avoid the useless confusion of the Table.

CHAPTER IX.

ON BELIEF.

EVERY philosophical discussion, and most of other discussions, are discussions about the meaning of words, either of single words, or of phrases, or of propositions; and most philosophical discussions, and many others, are barren and inconclusive because the different disputants, and often the same disputant, attach different meanings to the same word, phrase, or proposition, and often attach to it no clear meaning at all. In order to use a word, or a phrase, or a proposition, correctly and with propriety, it is by no means necessary that the user should be able to formulate in other words what his meaning is. The ability to feel and appreciate nice shades of meaning, and to express them in appropriate words, long precedes the ability either to define the distinctions or to formulate the meaning. The difference between 'I shall' and 'I will' is felt by every Englishman, though by no Irishman or Scot; but not one in ten thousand of those who use these expressions correctly, and never confuse them, could formulate in words the difference of meaning. It is the same with the great majority of words and expressions in common use. We feel their meanings: we always use them correctly; but if we are asked to define them in other words, not one of us in ten thousand could do so satisfactorily.

In common use, and on common occasions, the want of formal definitions of the words we employ does not matter much, for we understand each other, and ourselves, sufficiently well for common purposes; but discussions, and especially discussions upon matters that have puzzled mankind for ages, are quite futile unless we fix beforehand, as accurately as we can, the meaning of the words and phrases upon which the discussion hinges. In common use, the words Belief and Believe have many different meanings. As used in the Catechism—'All this I steadfastly believe'—and in the

Creeds of the Christian Church, the phrase 'I believe' means 'I am convinced,' 'I accept that statement as an assertion of fact.' In current use, as when we say 'I believe he is gone out,' it means uncertainty. It means not 'I am convinced he is gone out,' or 'It is a fact that he is gone out,' but 'I think he is gone out, but I am not sure.' Again, Belief may mean, not only at one time, as in the first example, assured conviction, and at another time, as in the second example, doubt inclining to affirmation, but it may be used, as I have used it at the head of this chapter, as a generic term, to mean at one and the same time every degree and shade of belief, from axiomatic certainty, through approximate certainty, and every degree of increasing doubt, to utter disbelief and inconceivability. In this sense the name Belief has many meanings, all, however, referring to states of mind or attitudes of mind. Attitudes of mind towards what? Towards fact, most people would say, and the answer would be approximately true, but fact is not the only thing to which we attune our beliefs, and if it were, and as far as it is, we must know precisely what we mean by fact.

Belief, Truth, Doubt, Certainty, Opinion, Possibility, Credibility, Probability, and many more, are all words germane to this discussion, and if we scrutinise them with care, we shall see that they fall naturally into three classes. Some of them we can predicate of ourselves, but not of impersonal things. We can say I doubt, I believe, I think, I am of opinion; but we cannot say It doubts, it believes, it thinks, or it is of opinion. Others we can predicate of impersonal things, but not of ourselves. We can say It is true, it is probable, it is credible, or possible, or likely; but we cannot say I am true, I am probable, I am credible, or possible, or likely. A third set of words, which are but few, we use indifferently either way. We can say I am certain, and It is certain; I am doubtful, and It is doubtful. In these cases, however, we are conscious of a certain impropriety in one of the uses. 'I am doubtful' means no more and no less than 'I doubt,' and the latter, as the shorter and more direct expression, is the one that ought to be preferred. 'I am certain' means no more and no less than 'I know'; and might be discarded in favour of I know. Discarding the words of this mixed and intermediate class, there remain those which we predicate of ourselves, and which indicate states of our minds, and those which we predicate not of ourselves, but of

impersonal things. The question arises To what kind of things do words of the second class refer? What is in apposition to the 'It' which is the subject of the proposition?

About this there is no room for doubt: 'It' refers to a statement. It is true that——, or probable that——, or credible that——. In every case the predication refers to a statement; but in every case an attitude of mind is implied, and in every case the statement is a statement of fact: so that in every case of the kind there are three things to consider and investigate: the fact, the statement about the fact, and the attitude of mind towards this statement. These three factors may at once be reduced to two. When we express the attitude of our minds towards a statement of fact, we are adopting an indirect method of expressing an attitude towards the fact itself. This is clearly shown by those cases in which we use the same word towards both. 'I am certain that hens lay eggs' indicates our attitude of mind towards a fact. 'It is certain that hens lay eggs' is an assertion directly about the statement that hens lay eggs, indirectly about the fact that hens lay eggs. It seems that it does not matter much which form we use, and in this particular case it does not matter; but in many cases it is more convenient to assert indirectly our mental attitude towards a fact through a statement than to assert directly our mental attitude towards a fact, and this for two reasons. In the first place, a statement is a form of words that may embody fact, or pseudo-fact or quasi-fact, or what is not fact; and we can express our attitude of mind towards such a statement without inconsistency; but we cannot without inconsistency, or at least incongruity, express our attitude of mind towards what is not a fact. We can say with propriety 'I believe hens lay eggs,' but we cannot say without a sense of irksomeness and impropriety 'I disbelieve hens lay chickens,' or 'I disbelieve hens do not lay eggs,' for in these expressions we are virtually asserting and denying the same fact in the same breath. The incongruity is at once removed by inserting the relative 'that,' for by so doing we transfer our opinion from the fact or quasi-fact to a statement of it. There is no sense of impropriety or incongruity in saying 'I disbelieve (the statement) that hens lay chickens' or 'I disbelieve (the statement) that hens do not lay eggs.'

The second reason that induces us often to prefer an asser-

tion about a statement to an assertion about a fact is that by using the former method of expression we have at our command a larger choice of shades of meaning than is available by the other mode : and with both at our command, the number of shades of meaning that we can express is largely increased, as we may see from the following examples.

'It is certain' means 'I affirm that the statement is true'; and corresponds nearly with 'I know that the fact is so', but is rather more emphatic.

'It is true' means 'I admit that the statement is true'; and corresponds nearly with one of the senses of 'I believe that the fact is so', but is perhaps more emphatic.

'It is probable' means 'I incline to believe that the statement is true'; and corresponds in some cases with 'I think', in others with 'I suspect that the fact is so.'

'It is possible' means 'I do not deny that the statement may be true'; and corresponds with 'I dare say the fact is so' or 'may be so.'

'It is doubtful' means 'I neither affirm nor deny that the statement is true'; and corresponds pretty accurately with 'I do not know whether the fact is so or not.'

In all these cases the last assertion expresses the attitude of mind towards a fact ; the second expresses the attitude of mind directly towards a statement, indirectly towards a fact ; and the first expresses explicitly an assertion about a statement, and implicitly the attitude of the mind towards, first, the statement, and second, the fact, or quasi-fact, expressed in the statement.

In the foregoing discussion the term 'fact' has been freely used. It is time to define it, and to ascertain how it is expressed. Of course, originally and strictly, a fact means a thing done, but few words have been more abused, battered and transmogrified ; and by many writers and speakers it is used pretty much in any sense they please at the moment. I discard all these meanings, and define it for the present purpose as anything existing or happening, in the past, present, or future. To us, however, a fact is always a relation, and we have no means of expressing, or indeed of apprehending, a fact except as a relation. Our expression of a fact is always in the form 'A is related to B,' and this empty form is filled out and vitalised by substituting appropriate terms for A and B, and by interposing between them a verb as a connecting link, as for

instance, Hens lay eggs. This is an expression of a fact, and the fact is expressed by asserting a relation of laying, which means in this case origination or parentage, between the eggs and the hens. It is manifest that there are as many relations known to us as there are verbs to express them ; and moreover, we are constantly inventing new verbs to express relations that we newly appreciate. I mention this because the teaching of every book on logic is that there is only one relation between things, and that there is only one verb in any language, namely, the verb 'to be' ; or if there is any other verb, it cannot be used to express a fact, or to argue or reason about it. This is what logicians teach, although they use all the verbs in the dictionary as freely as anyone else, and cannot, any more than other people, conduct their arguments without these verbs. The doctrine is a curious superstition, and well worthy the attention of students of irrational beliefs, but it need not detain us now.

Things exist or do not exist, happen or do not happen. Our business, if we think about them at all, is to bring our attitude of mind into conformity with fact, so that if a thing has, does, or will exist or happen, we should so believe ; and if it has not, does not, or will not exist or happen, we should attune our minds accordingly, and disbelieve. Now, it is a common-place of philosophy that we have no experience of things themselves, but only of their appearance ; and with respect to many things that we rightly believe, such as the landing of Cæsar in Britain, and the great earthquake at Lisbon, we have no experience even of appearance to go upon. How, then, are we to bring our beliefs into accordance with facts, our disbeliefs into accordance with the absence of facts ? In this way : Between facts, or the existence and happening of things, and our minds, which should be moulded into conformity with the facts, there is an intermediary, which we term evidence. The facts give rise to evidence, and it is the evidence and not the fact that impresses our minds. We can never have any direct knowledge of things or facts external to our minds : all that we can ever know is the evidence for or against them, and it is notorious that evidence may mislead. Still, though it may mislead, it is the only means we have of attaining a knowledge of fact, and therefore it is of the utmost importance that we should discover what is evidence and what is not ; what

evidence is trustworthy and what is not ; what are the sources of error in interpreting evidence, and how they may be avoided ; what kinds of evidence there are ; and, generally, ascertain how to bring our beliefs into accordance with the best evidence we can get.

For, as belief should rest upon evidence, so it should be in accordance with the evidence. Of some things, as of the size and position of a possible crater on the other side of the moon, we have no evidence at all, and therefore ought not to have any opinion at all. Of many other things, such as the existence of an enormous sea-serpent, the evidence is imperfect and inconclusive, and towards these the attitude of our minds should be one of doubt or scepticism. We have no right either to believe or disbelieve. Of yet other things, such as the existence of the moon, and the recurrence of the tides, the evidence is conclusive and unassailable, and towards these our attitude of mind should be one of belief.

It is customary to speak of a 'knowledge of the fact,' as if such knowledge were practicable, and indeed frequent ; and no doubt when the evidence is quite conclusive it would be pedantic and ridiculous to object to the expression. In such cases we may, for the common purposes of life, leap over the evidence, and conclude that the knowledge and belief conform to the fact ; but the habit of leaping over the evidence has its dangers. It leads very often to accepting a knowledge of evidence as a knowledge of fact ; and to a disregard of flaws in evidence which should make us hesitate. The attitude of hesitation is, however, irksome, inconvenient, and painful ; and few will maintain it until they have trained their minds to submit to it.

EVIDENCE.

Evidence of fact is of three kinds, and is derived from three sources : evidence of sense, evidence of reason, and evidence of hearsay ; and any one of these may be conclusive or inconclusive, convincing or worthless.

Evidence of Sense.—The evidence that facts themselves afford directly to the senses of hearing, sight, touch, and so forth, is commonly regarded as conclusive and irrefragable. 'Seeing is believing' is an aphorism that everyone accepts.

That which is palpable cannot be gainsaid. These statements are in one sense the truest of truths, but in another they may be very misleading. When we have an impression on a sense, when we see a light, hear a sound, or feel a touch, these are facts of ultimate certainty ; and it is not open to us to doubt that we do experience the sensation ; but a sensation no more remains a bare sensation when it is received by the mind than a fly remains a bare fly when it is received into a spider's web. In the one case as in the other, the intruder is instantly enveloped in a web of new material furnished by the owner of its new surroundings, which distorts and transforms it, and makes of it a very different thing. The mind is rarely content to receive a sensation and let it remain a bare sensation. It instantly begins to work upon it, to interpret it, and to infer from it to some external fact which corresponds with it and gives rise to it. This is seen by the character of the response that is instantly made by the mind to any sudden and unexpected sensation. When we receive a sudden and unexpected flash of light, or sound, or touch, the instant and unfailing response is 'What's that?' The question does not refer to the sensation. We know perfectly well what the sensation is. It is a flash of light, it is a loud crack or boom, it is a touch, light or heavy ; and no investigation can give us any further knowledge of the sensation itself. What the question refers to is not the sensation, but the source or origin of the sensation : not the feeling, but the fact that gives rise to the feeling. We say or think 'What's that?', but if we were to express our meaning with pedantic accuracy we should say 'What has happened?' 'What fact has occurred to give rise to this sensation?' The sensation is evidence ; the knowledge of the external fact that gives rise to the sensation is arrived at by interpreting the evidence ; and the knowledge will be true or false according as the interpretation is correct or incorrect ; and so will be the belief. I hear a booming rumbling noise, and this noise is evidence to me that something has happened in the world outside of me ; but what it is that has happened, the noise does not tell me. What conclusion I come to about the origin of the noise must be arrived at by interpretation ; that is to say, by the activity of the mind working upon the materials it possesses. I interpret the sound as thunder. I may be right : I may be wrong. It may be thunder, or it

may be heavy guns. The sensation itself does not tell me. It is from the interpretation of the sensation that I derive my belief; and although sensation cannot err, the interpretation of sensation may be very erroneous; and the moment interpretation steps upon the scene, the chances of error begin. At how early a stage interpretation begins, and how irresistibly it may lead us to false conclusions, are shown by the many examples of what is called sensory illusion. If we touch a marble with two adjoining fingers, we have two sensations of touch which we interpret as due to one object; but if we cross the fingers and again touch the marble simultaneously with both, we cannot help interpreting the sensation as due to two objects. The familiar experiences afforded by the conjurer and the ventriloquist give us examples of illusion of the senses of sight and hearing, illusions which are in every case due to misinterpretation of what we see and hear; but it would be quite a mistake to suppose that misinterpretation is limited to the cases in which others lay elaborate schemes to deceive us. When sight or hearing is impaired, misinterpretation of these sensations becomes frequent, and it is occasional with all of us, as the many cases of mistaken identity testify. For a long time it was in doubt, and for aught I know it may still be in doubt; whether there are or are not rectilinear markings on the surface of the planet Mars; and the interpretation of the markings, if they exist, is still a matter of dispute.

Interpretation of a sensation consists in likening it to some previous sensation that we have had, the source of which we have ascertained. Thus, when I hear that deep booming sound, I mark its resemblance to such sounds that I have heard in the past, and say 'That must be thunder,' or 'That must be guns.' Which source I choose must depend upon my recollection of the sounds of thunder and of guns; and upon which of these the sound that I now hear most resembles. When I identify a man as one that I have seen before, my interpretation of the visual sensation depends on the faithfulness of my memory of what I have seen before, and on the degree of likeness that I can trace between the present sensation and the memory of the past sensation. Accuracy of interpretation depends partly on faithfulness of memory, and partly on the ability to discern likeness and difference.

A powerful aid to interpretation, in cases in which it can be

employed, is the checking of the evidence of one sense by the evidence of another. If a thing looks as if it were hard or soft, we can test that interpretation by the sense of resistance. If it looks as if it were at a certain distance, we can traverse that distance, and note whether we reach it. The corroboration of one sense by another usually removes the possibility of doubt; but we find that seeing is not always believing, or if it is, the belief may be erroneous; and although the evidence of sense may usually be trusted, and in almost every case must be trusted, yet possibilities of error lurk in the interpretation of this evidence, and there are cases in which these possibilities ought to be borne in mind, and judgement, even of the evidence of sense, suspended.

Evidence of Reason.—As we have just seen, the whole cogency of the evidence of the senses lies in the way we interpret it; and we interpret it by the activity of the mind working on the material with which the senses furnish it. Interpretations of sensations, or perception, is, in short, an example and a method of reasoning; very elementary reasoning it is true, but still reasoning of a kind, and of a kind that is the model of a very large part of our reasoning. The only difference is that in the rest of this kind of reasoning the material is not the direct evidence of the senses, but other evidence—evidence that has been gradually accumulated in our minds by experience and hearsay, and which the mind can work upon and interpret in the same way as it works upon and interprets the evidence of sense; that is to say, by remembering, and by tracing likeness and difference between the things remembered. The general rule is that the more completely the evidence harmonises and accords with what we know to be true, the more readily we may accept that evidence as evidence of truth; and *vice versa*, the more incongruous and discrepant the evidence with what we know to be true, the more cautious we should be in admitting it.

This raises the crucial question, What do we know to be true? and this question has, curiously enough, two answers, one derived from reason and one from experience.

As we have already found, a statement is not bound to conform to truth. We can form the statements 'Paris is in London,' 'The Thames is run dry'; but we cannot assert either of these statements, for assertion means that we intend

what is asserted to be received as true. Now there are certain statements that are not merely false, like the instances just given, but that the mind refuses to entertain. A statement consists, as we have already found, of two terms predicated to hold towards each other a certain relation. It is possible to take any two terms we please, and to couple them in a statement by any verbs we please, and the resulting statement then comes before the mind for acceptance, or rejection, or any other operation the mind can perform upon it. With this wide liberty of concocting statements it is evident that we can, if we please, form some that are nonsensical, and that convey no idea to the mind, as for instance 'Two o'clock is solid,' 'Limestone reasons downward,' 'Hens shine pocket-books.' Such statements the mind has nothing to do with. It neither accepts nor rejects, but disregards them. It is impossible even to consider whether they are true or not. There is a second kind of statement which is not nonsensical, which can be entertained by the mind, but which the mind instantly rejects, because it cannot conceive the terms to stand in the relation which the statement purports to assert. Such are the statements 'The hen laid an egg larger than itself,' 'The space was enclosed by two straight lines,' 'The solid body is liquid,' 'The pain was unconsciously felt.' In these cases the relation expressed in the proposition is inconceivable. The mind cannot put the terms together in the relation that is predicated. It is intuitively perceived that the statement is false, and that its contradictory is true. Thus, by the light of reason alone, by the very nature of the terms, it is seen that they cannot exist in the relation predicated, and that the contradictory of that relation must be true. The realisation of this truth does not rest upon experience. It is independent of experience, and apart from it; and it is the highest and most assuredly certain truth that the mind can entertain. We need no experience to assure us that the hen did not lay an egg larger than itself, that the space was not enclosed by two straight lines, that the solid body is not liquid, or that the pain was consciously felt. Such truths, which are the contradictory of what is inconceivable, are called Axioms; and as already said, axiomatic truth, or axiomatic certainty, is the uttermost certainty of belief that the human mind can entertain. The terms are bound up indissolubly in the relation, and no effort of mind can tear them asunder.

Axiomatic truth is the contradictory of what is inconceivable. Herbert Spencer arrived at the conclusion that the test of truth is the inconceivability of the opposite, and this doctrine was strenuously opposed by Mill; who declared that it is no test, since many things, such as the antipodes, the rotation of the earth, and gravitation, were inconceivable to our forefathers, but are become commonplaces to us. The contradictory of these beliefs was accepted by our forefathers as true, and is known by us to be false. The contradictory of what is inconceivable is therefore, in Mill's opinion, not necessarily true. It may be as mistaken and false as any other belief. Spencer felt that he was right, and he was right; but he had great difficulty in meeting Mill's objection, and never met it satisfactorily. He maintained that in the cases adduced by Mill, the relations that had been thought to be inconceivable were not really inconceivable, but had been thought to be so because they were not clearly represented or pictured in the mind. When, however, we do clearly represent a relation in the mind and find it indissoluble, it must, so Spencer said, be true, and we cannot help admitting that it is true. Spencer rested his defence upon a wrong ground, and it is easy to demolish. There is no difficulty in clearly representing or picturing in the mind the antipodes and the rotation of the earth; and both their existence and its contradictory are easily conceivable, and have in fact been conceived. The true defence is that Spencer, when he said that the contradictory of the inconceivable must be true, was referring to axiomatic truth; Mill, when he denied it, was referring to empirical truth; and thus both were right and both were wrong. That the earth rotates, or does not rotate, is a relation whose terms do not refuse to exist in either relation. The mind can put them together in either relation, and does not intuitively perceive that either is true or false. Which is true and which is false is for evidence drawn from experience to decide. But to perceive the truth of an axiom we need no evidence. We need no evidence to enable us to decide whether a hen can lay an egg larger than itself, or whether two straight lines can enclose a space, or whether a pain can exist without being felt, or whether a solid thing is liquid. As soon as we have experience enough to comprehend the relation that is asserted, we see that it must be false. The mind refuses to entertain it, and asserts at once that the contradictory must be

true. Mill's instances are not of this nature. Whether they are true or false is matter for discussion : it is for experience to decide : their truth or falsity is not intuitively perceived the moment they are stated and the mind grasps their meaning. In short, they are not axiomatic truths or certainties, they are empirical beliefs.

Rightly apprehended, an axiomatic truth cannot be doubted. Of course we may frame a statement which purports to deny an axiom, but it is beyond human capacity to doubt an axiom, and anyone who pretends to do so is either deliberately lying, or is so muddle-headed as not to know the meaning of what he says.

Empirical certainty is a degree less assured than axiomatic certainty. Empirical truth, once established, must be believed ; but it is always open to us to conceive the contradictory, though we may not be able to believe it. Empirical truth is, as its name implies, founded upon experience, and our warrant for it is experience alone. Conceivably the fact might be otherwise. In experience it never is and never has been otherwise. Consequently, as long and as far as our knowledge that it never has been otherwise extends, we are precluded from believing that it ever will be otherwise. It is to us an empirical certainty. The basis of empirical certainty is constancy in experience, by which is meant, in the first place, the accumulation of instances without exception. The greater the number of experiences of a given fact that we can accumulate without finding any exception, the firmer becomes our belief that the fact is universally true, and that no exception will be experienced ; until at last conviction becomes unshakeably assured.

No one nowadays doubts that mankind are necessarily mortal—that every man, woman, and child that now lives will die, and that there is no one now living who was alive two centuries ago. This is not an axiomatic truth. The contradictory of it is not only conceivable, but has by many people been believed. There have been few primitive peoples who have not believed in the immortality of some chief or prominent character who impressed himself powerfully on their minds during his lifetime, and became the centre of legend after his death. We have our King Arthur, our Merlin, our Thomas of Ercildonne, the Germans their Frederick Barbarossa, Denmark its Holger Danske, and other nations their analogous

characters; but such beliefs have prevailed only among primitive people, belonging to small communities without authentic memorials of past times, and without any critical faculty of interpreting evidence. As far as we know, there has never been an instance, there is no evidence worth the name, that of all the millions of millions of mankind who have lived in past ages anyone has escaped the fate of dying.

This complete constancy in experience of the sequence of death upon life in men is of itself sufficient to produce in us an empirical certainty that the sequence never will be broken, and that all children who are born into the world will die sooner or later; but this constancy in experience is reinforced and corroborated by a constancy of far greater extent. Men are living beings, and with respect to what they have in common with other living beings we can argue from other living beings to men; and our constant experience of all living beings, animal and vegetable alike, is that after a period of life they die. More even than this, the slowly accumulating experience of mankind through the centuries, and the insight that we have gained in the last few generations into the processes of nature, all go to show that destruction, dissolution, decay, or at least change, is the universal law of all material things; and man's body is a material thing. This vast concourse of experiences, to none of which can any permanent exception be shown, breeds in us a corresponding fixity of belief in the inherent mortality of man, a belief that is not axiomatically certain, for it is not difficult to conceive that a man should go on living for an indefinite time, and indeed, many have conceived, and even in a sense believed it; but the belief is empirically certain, for, with the evidence now at our command, it is impossible to admit that any man has lived much beyond a century, and this complete constancy in our experience of an indefinitely great multitude of cases of men and other living things, justifies and compels an empirical certainty of belief.

A very similar empirical certainty is that heavy bodies, if unsupported, fall to the ground. This, again, is not an axiomatic certainty. It is easy to imagine heavy bodies without support remaining suspended above the ground; and the case of Laputa shows how easily it can be imagined, while the case of Mahomet's coffin shows that it can be not only imagined but believed. We have, in fact, many experiences of heavy bodies

without visible support which yet do not fall to the ground. Every flying bird is such an instance, and we frequently see leaves, straws, and other things tossed about by the wind without falling. In such cases we soon learn that the air, though invisible, is a support, and that the rule is not really broken ; and so at length, by the accumulation of innumerable experiences without any real exception, experiences constantly recurring throughout every moment of our lives, we are driven and compelled to adopt as quite certain the belief that heavy bodies, if unsupported, will inevitably fall to the ground ; and although we can imagine exceptions, we cannot believe that there ever has been or ever will be a real exception, and the belief is inescapable. It is an empirical certainty.

These, it will be seen, are cases of that *enumeratio simplex, ubi non reperitur instantia contradictoria* which Bacon and subsequent logicians have scouted as utterly untrustworthy as a ground of belief. It is unquestionable that it is, on the contrary, the ground of the most certain and inescapable of all our empirical beliefs.

It is true that it is not always a satisfactory ground of belief, or at least that the evidence may be so interpreted as to give rise to beliefs that are unwarranted. The ancients believed, on somewhat similar grounds, that every swan is and will be white, and that no such thing as a black swan is credible. Since their day, black swans have been discovered, and they have been shown to have been in a sense wrong ; but they were not wholly wrong. Let us see what were the grounds of their belief. They had had many experiences of swans, and in every case without any exception the swans had been white. According to rule, therefore, it seems that they were justified in entertaining the certain conviction that all swans thereafter discovered would be white, and no swan of any other colour would ever be found. It will be seen at once, however, that the number of cases, in which swans had been seen and found without exception to be white, were as nothing in comparison with the number of cases in which unsupported things had fallen to the ground, or with the number of cases in which men and other living beings had proved their mortality by dying. A very important element in confirming the certainty of an empirical belief is the number of cases in which the conjunction or relation has been witnessed and found to be constant. Constancy,

however complete, that extends over but few cases ought never to be accepted as ground for a certain belief; and the acceptance of a few cases as proof of a general law is one of the most fertile sources of erroneous belief. If, upon visiting a new country, the first man we met was six foot four, or even the first two or three men we met were more than six feet high, it would be manifestly very unsafe to form the belief that all the inhabitants of that country were exceptionally tall. Although the relation would be constant in experience as far as experience went, the experience would be far too limited to justify a belief in the general prevalence of the relation. A similar error, not so gross, but similar in kind, though less in degree, vitiated the belief of the ancients in the universal whiteness of swans. The instances were too few.

But there was another and more serious error. We have seen how enormous a corroboration and justification for the belief in the mortality of men is afforded by the constancy in experience of the mortality of other living things, that is to say, of things that, for the purpose of the argument, are like men. It is manifest that if all birds, and still more if all animals also, had been white, and no instance of a bird or an animal of any other colour had ever been known, the certainty of the belief that all swans are and will be white would have received a tremendous corroboration. But this is not so. Not only animals, but birds also, exhibit a great diversity of colour, and even some birds that are, for the purpose of the argument, not unlike swans, such as geese, exhibit some diversity of colour. Therefore the belief that all swans are and will be white was risky, and should have been held lightly, and subject to further experience.

Nevertheless, as far as it went, and as they understood it, the belief of the ancients that all swans are white was justified, and was true. By 'swans' they meant the species and breed of swans that they knew, and with respect to these 'swans' they were right; for no swan of that species has ever yet been of any other colour, as far as we know, in the two thousand years that have elapsed since their day; and with every generation of these swans the appearance of an individual of any other colour becomes less likely. The black breed of birds resembling swans, that has since been discovered, we call by the name of swans, but they are not the same kind of swans as were

known to the ancients, and might very well have been called by some other name. They may be swans, but they are swans with a difference ; and as far as the swans which the ancients believed to be always white are concerned, their assertion was true.

It is clear, I think, that empirical beliefs in the general truth of relations always depend upon the constancy in experience of those relations, and are the more justifiable, the more confirmed, and the more inescapable, the greater the number of instances in which the experience has been constant.

Supposing, however, that the relation is not constant in experience, but is liable to exceptions, in which its terms are experienced dissevered from one another, what effect will this inconstancy in experience have upon the attitude of mind ? For instance, cancer is generally a fatal disease, but every now and then there occurs a case in which a cancer, after having advanced to a certain stage, shrinks up, dwindles away, and disappears, or leaves a mere remnant, and the patient recovers his former health. If we have had, directly or indirectly, that is to say by ourselves or by others, experience of a very large number of cases of cancer, every one of which has been fatal, our belief in the fatality of cancer will be strong in proportion to the number of cases in which a fatal issue has without exception occurred. Now if a case occurs in our experience in which recovery ensues, we have two alternatives of interpretation. We may believe that we have been mistaken in supposing that the disease is cancer, and may adhere to our original belief that cancer is always fatal ; or we may modify our belief about the fatality of cancer, and admit that though it is very generally fatal, yet it is not always so. There is no doubt that in every case in which the experiences of constancy have been very numerous, the safest course is the first. We should assume that we have been mistaken in supposing that the constancy has been broken, and should require the most stringent and unimpugnable evidence, first that the tumour really was cancer, and second that it really did shrink up, dwindle away, and allow the patient to recover. Unless and until evidence on both these points is established beyond reasonable doubt, we ought not to admit that cancer can ever recover. But if these two matters are satisfactorily established, then we can no longer doubt, but must modify our original belief, and

admit that, although cancer is generally fatal, yet it is not universally or necessarily so.

The number of cases in which cancer has been watched and has been found to be fatal is many thousands, many tens of thousands, perhaps many hundreds of thousands ; and the number in which the result has not been fatal has been few, perhaps a few dozen, perhaps a few score ; but in any case, constancy in experience, even if complete, and even in hundreds of thousands of instances, does not warrant the assured certainty that is derived from the constancy in experience of the fall of unsupported bodies. Of this we have experiences by myriads, experiences daily and hourly all our lives long, experiences that are common to ourselves, our companions, our predecessors, and as far as we know to the whole human race. To such constancy in experience no exception ought to be admitted on any ordinary evidence. Any apparent instance to the contrary should be *primâ facie* disbelieved, and no approach to belief should be admitted until the instance has been examined, and tested, and re-examined, and retested, in every possible aspect and by every possible means. Mere eyewitness of such an instance is worthless, and should not be admitted for an instant. If a person thinks he sees a heavy object, such as a table or a man, rise from the ground and remain suspended in the air without visible means of support, he should assume as a matter of course that there are means of support invisible to him ; and in the improbable event of his investigating the matter closely and still discovering no means of support, his proper attitude of mind is to assume that the means of support are so cleverly hidden that he is not able to discover them. In face of the universal experience of the human race that the relation is constant in experience, he would be guilty of unjustifiable credulity if he believed, on the evidence of a single instance, that an exception could occur.

In many things experience exhibits little or no constancy. In this country there is very little constancy in the sequences of the weather. A fine day may be followed by a fine day, or it may be followed by a wet day ; and as there is no constancy in experience, so there can be no assured belief, and in any individual case no assured expectation. We may, indeed, be able on other grounds to forecast with some success what the weather will be to-morrow, but we cannot do so on any con-

stancy in experience of the succession of a wet day on a fine one, or *vice versâ* ; but though we cannot rightly form any belief of the kind of weather that will occur on the day following a wet day or a fine day, we are not altogether debarred from belief. On the contrary, our experience has been in some respects constant, and consequently in some respects we have very definite and positive beliefs about the weather generally. As far back as our records go, and as far as the memory of the oldest inhabitant serves, the weather in these islands has been generally inconstant, with occasional spells of uninterrupted rain, and occasional spells of uninterrupted fine weather. We are therefore justified in believing, and indeed compelled to believe, that in future the weather here will continue to exhibit these characters, and that we shall go on indefinitely having spells of fine weather, spells of wet weather, and spells of changeable weather. In short, in whatever respect experience has been constant, even in inconstancy, in that respect we are justified in believing, and compelled to believe, that it will continue to be constant.

Empirical belief rests, therefore, upon two elements in experience : first on the absolute number of the experiences of the particular relation. If these experiences are sufficiently numerous, and are all one way, we must believe that the experience is necessary and will continue. The smaller the number of experiences, even if they are all one way, the less are we justified in arguing to other similar cases, and the more cautious should we be to keep an open mind. When experiences are not constant, but are sometimes one way and sometimes another, we are not warranted in believing that any new experience of the kind will be either way ; but when experiences of one way preponderate numerically over experiences of the other way, and the total of experiences of both kinds is very large, we are justified in believing, and compelled to believe, that a similar proportion will hold of such experiences in the future, and that the chances of a new experience being one way rather than the other will be in the proportion that the ways have borne to one another in the past.

Evidence of Hearsay.—Immense numbers of our beliefs are based on this kind of evidence ; and as it is manifestly open to more sources of error than either of the other kinds,

it is incumbent on us to examine it with some care. It is more open to sources of error than the other kinds because all evidence, including that of hearsay, is ultimately derived from experience or from reasoning, and hearsay evidence has additional sources of error in the untrustworthiness of the witness, either from bias, or from deliberate intention to deceive, or from defect of memory, or from other causes.

With respect to every assertion, the first necessity is that it shall be understood in the same sense by both the assertor and the recipient, and this is often not the case. The ancients asserted that all swans are white. A modern zoologist will assert that all swans are not white—that in fact some swans are black. Either assertion may be true or false, according as it is understood. If by 'swans' we mean the familiar European species, the ancients were right ; but if we include in the term 'swans' birds that are sufficiently like the European species to be included in the same genus, and extend the name so as to cover this genus, then the moderns are right and the ancients are wrong. Again, there is another sense in which both are wrong. No swans are wholly white or wholly black. The legs and beak of the white swan are not white, and the beak of the black swan is not black. Still, it would be pedantic and unnecessary to deny, on account of these exceptions, that the one is white or the other black. Neither statement is strictly accurate ; but this does not matter, because both assertor and recipient are quite aware of the exception, and both understand the assertion in the same sense. If I assert that all gnats bite, the assertion is true in one sense and false in another. It is true that gnats of every species bite, but the males of some species do not bite ; and while it is true that the females of every species bite if they get the chance, many individual female gnats never do get the chance, and therefore in this sense all female gnats do not bite. Still, though exception may be taken to the mode of expression, the mode of expression is of no importance as long as both parties understand it in the same sense.

Having ascertained that we understand the assertion in the sense in which it is meant, the next question we are to ask ourselves is Is it true ? It may be true or false, and if false, it may be false with or without the knowledge of the assertor ; in other words, it may be a lie or a mistake ; and if a mistake, it

may be a sane or an insane mistake—it may be a sane mistake or a delusion.

The first question to determine is whether the witness is a witness of truth as far as he knows it—whether he is asserting what he believes to be true, or what he knows to be false, or recklessly, what he does not know to be either true or false. As to this we must be guided mainly by two considerations :—by the previous record of the witness, and by his responsibility. The previous record of the witness for truthfulness and carefulness must go far to determine our judgement whether he is truthful and careful on this occasion. That is unavoidable, and in accordance with the general principle of induction, by which we infer that that which has been constant in experience will continue, and infer it with a confidence proportioned to the number of uncontradicted experiences. In the absence of any such record, we ask, first, if he is responsible, and our opinion of the *bona fides* of his assertion rests largely upon the degree of his responsibility ; that is to say, upon how far he would suffer in reputation by telling a lie. Hence we are always ready to accept as truthful in intention the assertions of prominent persons on important and public occasions, and accept them the more readily the more prominent the position of the assertor, and the more public and important the occasion on which the assertion is made. It is true that our faith is sometimes unwarranted, but the rule is a wholesome one, and is usually justified.

A third consideration, which must influence us, rightly or wrongly, is whether the assertor has a personal interest in getting the assertion accepted.

Having determined that the witness is in intention a witness of truth as far as he knows it, the next stage is to estimate how far he does know the truth, and this is the matter that is most often neglected. In order to estimate it we must consider, first, what his opportunities of knowing are, and second, what his bias is likely to be.

It is surprising how implicitly most people receive as true the evidence of those who have no better means of knowledge than the recipients themselves. ‘They say’ is an authority that is accepted with unquestioning submission, without even a query as to who are the ‘They’ who say it. The whole fabric of popular superstition about what is lucky and what is unlucky

rests entirely upon what 'They say.' Who 'They' are, or what opportunities 'They' have of knowing, are questions that are never asked, and that the superstitious people who entertain these beliefs never think of asking. They would, I fancy, regard it as presumptuous, and almost irreligious, to ask. But it is not only with respect to beliefs like these, that are *primâ facie* irrational and absurd, that the omission is made. Many prevalent beliefs on other subjects are equally without rational foundation. There is a prevalent belief, for instance, that cigarette smoking is more injurious to the smoker than the smoking of pipes; and this belief is widely and firmly held on no better ground than the belief that it is unlucky to look at the new moon through glass. Occasionally we may obtain the assurance that 'doctors have said it,' but it is usually found that 'doctors' is but another expression equivalent to 'They.' Supposing, however, that the dictum can be traced to a doctor, I have never found, and I have often tried to run to earth the origin of this strange belief,—I have never found that the doctor has any better ground for his belief than the fact that 'They say.' In discussing the matter with an intelligent person who is not a doctor, I have been told that he felt bound to accept the dictum of a doctor, because the doctor was in a position to know. This is an instance of simple faith comparable with the confident assurance that was reposed in the middle ages on the assertions of an ecclesiastic. It is clear to anyone who gives a moment's thought to the matter, that to determine whether cigarette-smoking is or is not more deleterious to health than pipe-smoking would require a very long and laborious course of experimentation, such as no one has ever yet undertaken, or an accumulation of non-experimental evidence, such as has certainly never been attained.

The belief that canker and other diseases of fruit trees are due to sourness of the subsoil rests also upon what 'They say.' Most people who are not gardeners accept it upon the evidence of gardeners, and assume that gardeners 'must know.' But why must they know? I am pretty sure that no gardener except myself has ever tested the subsoil to discover whether it is sour, nor is there any evidence to show that if the subsoil were sour it would be any more favourable to the growth of canker than an alkaline subsoil.

Many people believe in the occurrence of what has been

called telepathy, and many believe in the genuineness of the 'manifestations' of 'spiritualism.' In some cases the belief is founded upon the experiences of the believer, but there is now besides these a large number of people who hold these beliefs upon hearsay evidence. Certain persons profess their faith in the existence of telepathy, or in the 'manifestations,' and a ruck of other persons hold the belief on the evidence of those witnesses, without any critical enquiry into the worth of that evidence. 'So and so,' they say, 'that is, Sir Roland Illogic and Sir William Hookes, say so, and they are scientific men; and what a scientific man says on a scientific subject is good enough for me. I myself have no personal experience, but as a sensible man I must accept the opinion of an expert. No, I shall not suspend my judgement about it. You might as well ask me to suspend my judgement about the revolution of the earth. To me it seems that the sun goes round the earth, but scientific men who are in a position to know tell me that it is not so, and that the earth goes round the sun, and I accept their evidence. How can I consistently accept the evidence of scientific men in the one case, and reject it in the other?'

The reasoning seems plausible on the face of it, and is representative of such a large body of opinion on so many subjects that it is worth examination. The assumption that underlies it is that the evidence of a witness who is a witness of truth, and is in a position to know the fact to which he testifies, ought to be accepted. There is no question about these witnesses being witnesses for truth in intention, that is, of what they believe to be truth; but the assumption that they are in a position to know the facts to which they testify is altogether unwarranted. That we must trust the expert is a sound general maxim; but before we trust him we must make sure that he is an expert. The greatest possible eminence of an expert in one branch of science adds not a grain of weight to his opinion in another branch of science. However profound may be a man's knowledge of chemistry, his opinion is not on that account more to be trusted than that of a farmer or a fishmonger upon a question of astronomy. But, it may be said, he is accustomed to weigh evidence? He may or may not be. Many scientific men are very poor hands at weighing evidence; and in any case, no scientific man has any experience at all in weighing the kind of evidence that is necessary to distinguish between

genuineness and imposture in spiritualistic 'manifestations.' The 'manifestations' are the kind of occurrences that, if not genuine, can only be produced by conjuring tricks, and the only expert whose opinion of them is of any value is a conjurer. The opinion of a professor of electricity or of spectrum analysis is of no more value in such cases than the opinion of a ship's-captain or a carpenter. The evidence for the revolution of the earth rests upon quite a different basis. The experts who testify to this are experts in this very subject. The whole of their science is founded upon this supposition; and upon this supposition is founded the compilation of the *Nautical Almanack*, by means of which innumerable ships find their way across the pathless ocean with unerring certainty to their destinations. In other words, conduct founded upon the supposition never leads to experience inconsistent with the supposition; and this is the conclusive test of truth.

'They say' was the foundation, and the only foundation, for the belief in judicial astrology—the belief that the position of the planets, and especially of the moon, influences and regulates the course of human lives, and the fortunes and misfortunes to which human beings are subject. In the long history of judicial astrology, extending over six thousand years, it scarcely ever occurred to any one to ask the crucial question, 'What opportunity have the assertors of knowing whether their assertions are true? What is the evidence on which their belief is founded?' Moreover, never did anyone test whether conduct founded on the belief led to experiences inconsistent with the belief; or if they did, these experiences were powerless against the overwhelming efficacy of 'They say.'

Galen thought that the arteries carry the vital spirit from the heart to all parts of the body; and if this is so, there must be a hole in the septum of the heart to allow the spirit to pass from the arteries of the lungs into the arteries of the rest of the body. He taught, therefore, that there is such a hole, and for fourteen hundred years anatomists believed him, and in spite of the plain evidence of their senses, followed his teaching, and believed that a hole is there, although they could not find it; so strong is the power of 'They say.' He taught also that the veins carry the blood from the heart, and so sure were anatomists that he must be right, that when a valve was found in the azygos vein, a valve which effectually prevents the blood

in that vein from flowing away from the heart, they again refused to believe the evidence of their senses, and declared that the valve operates in the direction the reverse of that in which they saw it operate.

It would be a great mistake to suppose that the efficacy of what 'They say' is abolished in these latter days, or that it influences the minds of the uncultured and the vulgar only. Logicians were told by Aristotle that a universal is necessary in every act of reasoning, and they believed him, and still believe him as faithfully as ever an anatomist of the School of Salerno believed Galen about the hole in the heart. In many arguments, as for instance in the argument *a fortiori*, there is no universal. Logicians have been trying for two thousand years to find a universal in the argument *a fortiori*, and they have failed, just as the anatomists failed to find Galen's hole in the heart; but does this failure modify their belief? Not a bit of it. 'They say' there must be a universal in that argument, and a universal there must be. To doubt it would be to doubt the omniscience and infallibility of Aristotle, and no logician would dare to be guilty of such blasphemy. What are two thousand years of failure? Did not belief in judicial astrology, founded on precisely the same kind of evidence, last three times as long? and may not the belief in the universal in reasoning hope for similar longevity? To doubt it would be to doubt the efficacy of 'They say.'

For nearly as long 'They' have said that insanity is disorder of mind, and disorder of mind is insanity. In vain it is pointed out that there are many disorders of mind that are not insane, and that there is much in insanity besides disorder of mind. Reason, observation, experience, the plain evidence of the senses, are powerless against the authority of 'They say.' What they have said, that they continue to say, and that they will continue to say to the end of time. In vain it is asserted, in vain it is proved, that what a man says and does is alone enough to prove his insanity, which also cannot be proved without this evidence. 'They say' it is not, and what 'They say' must prevail, and does prevail.

The influence of bias upon opinion has been so thoroughly considered by Herbert Spencer in his Chapters on the subject in the Study of Sociology, that little need be said of it here. There is one kind of bias, however, that Spencer does not

mention, and as it is perhaps as frequent as any other, a word may be said of it. We are strongly biassed against any assertion made by a person we dislike, and against opinions we dislike. The former is too frequent to need illustration; of the latter the following instances will suffice. A certain professor of philosophy in Padua asked Galileo to explain to him the meaning of the word parallax, so that he might refute the doctrine it expressed, which was opposed, so he had heard, to the teaching of Aristotle. Another admirer of the Stagyrte refused to look through a telescope, lest he should be convinced of the existence of Jupiter's moons. It would be a great error to suppose that this attitude of mind did not survive the sixteenth century. The greater part of the opposition to the *New Logic*, and to the doctrine that madness is disorder of conduct, rests on precisely the same prejudice.

From the foregoing considerations it would appear that hearsay evidence is open to so many sources of error that it can never have any great value, and that it would be most dangerous to base any firm belief on any important subject upon hearsay alone, or even chiefly. Such an attitude would be very erroneous, even if we could adopt it; and we cannot adopt it. It is quite true that hearsay evidence should be received with care and discrimination; and it is true also that all our most grossly and flagrantly erroneous beliefs are founded upon hearsay; but on the same evidence are founded some beliefs that are but little inferior in justification to the empirical certainties, such as that noise always proceeds from movement, that yield only to axiomatic certainties in justification and inescapability. Besides the intrinsic credibility of hearsay evidence that arises from our trust in the truthfulness of the witness, and our estimate of his opportunity of knowing the fact, there are extrinsic circumstances which may add such weight to hearsay evidence as compels us to accept it as true, or may demolish its cogency altogether, and leave us no alternative but to reject it. These are, first, the congruity of the hearsay evidence with already existing beliefs, and, second, the concurrence of witnesses; or we may put it corroboration by experience, and corroboration by other witnesses.

In days when knowledge was less diffused than it is now, a sailor on his return to his native village reported that he had seen in his travels mountains of sugar, rivers of rum, and fishes

that flew like birds. The village gossips received the first two items of information with acquiescence, 'for,' they said, 'we have seen sugar and rum, and they must come from somewhere ; but flying fishes are a traveller's tale ; you cannot deceive us with such a cock and bull story as that.' The judgement was erroneous, but the principle on which it was founded was correct. It was the comparison of the hearsay evidence with knowledge already in possession, and the reception or rejection of the evidence according to its congruity or incongruity with what is already known. They were wrong in believing in the alleged origin of sugar and rum, because the corroboration was insufficient. The known existence of these commodities proved that they must have some origin, but did not point to one origin rather than another. But they were right in disbelieving in the existence of flying fish, for such animals are so incongruous with all the experience that the audience had had of fish, that they ought not to have believed it upon mere hearsay from a single witness ; and they were none the less right in spite of its happening to be true. Such a startling incongruity ought not to be accepted without strong corroboration. Similarly, when the reported discovery of the *X* rays reached this country, some scientific men disbelieved it, and many suspended their judgement, and refused to believe it until it was corroborated. The latter were undoubtedly right, and the former were not very far wrong. That any rays but those of light could affect a photographic plate was so incongruous with all our experience up to that time, that scepticism was not only justifiable but proper. That radiant forces could penetrate solid and opaque substances was, indeed, familiar in the cases of gravitation and magnetism, but neither of these has the power of precipitating silver from its combination in a colloid, and the cases were not in point.

It is customary for the newspapers in the summer, when Parliament is not sitting and news is scanty, to make jocose remarks about the sea serpent ; and it is generally assumed that no such animal exists. There is nothing, however, in the evidence we have of the existence of a gigantic sea serpent that is incongruous with zoological knowledge. Many fabulous animals, such as the griffin, the cocatrice, the phoenix, the centaur, the dragon, are zoologically impossible. They are inconsistent with what we know of the necessary structure of

animals. The griffin, for instance, is represented with the body of a quadruped, the claws and head of a bird, and the wings of a bat, and with the ability to fly. Now it is quite beyond question that the ability to fly with wings implies the existence of very powerful muscles, and therefore of very large muscles, such as constitute the breast of a flying bird; and without such muscles a pair of wings would be of no more use for flying than if they were cut out of paper and stuck on with glue; but in the fabulous griffin there is no sign of any more muscles than are needed for quadrupedal progression, and we may therefore be sure that such an animal could have no wings. There is no such incongruity in the structure of the sea serpent. The only thing unusual in the reported appearance of the animal is its size, and we know that very large animals do inhabit the sea. There is therefore no reason on the ground of incongruity why we should positively disbelieve in the existence of such an animal as has been described as the sea serpent. It may be wise to suspend our judgement, but that is a very different attitude of mind, and is inconsistent with disbelief.

As long as I can remember, and I am now growing old, 'They' have said that this or that prominent personage has been addicted to drink; and as long as I can remember the question has been put to me, or to others in my presence, 'Do you believe it?' Rightly conceived, the question is an insult to the intelligence of the person to whom it is put. It assumes that he will form a belief, without any adequate grounds for doing so, on the mere authority of what 'They say.' It is on a par with asking if we believe that there is a crater fifty-one and a half miles in diameter on the other side of the moon. There may be, or there may not be; but as we have no evidence either one way or the other, it would be a sign of weak intellect to believe either way. It is true that the interrogator does not really want an answer to his question. What he wants is to obtain a momentary factitious importance as the retailer of a spicy bit of gossip. The question is merely an excuse for the gossip; but it does not make the gossip excusable. None the less is it an insult to the intelligence of the person to whom the question is put; and to meet such an assertion of what 'They say' with an indignant denial, as a worthy but ill-advised bishop did on one occasion in a sermon,

is injudicious and disproportionate. The proper course for the interrogatee is to resent the insult to his intelligence.

Suspension of judgement is an extremely important attitude of mind, and one that it is frequently most important to adopt ; but it is an attitude of mind that is not always easy to adopt, even for cultivated persons, and one that many persons are quite incapable of. They must either believe or disbelieve, and no middle course is possible for them. There are, however, so many cases in which suspension of judgement is the right attitude to adopt, that it is the plain duty of everyone to cultivate this attitude, and not to allow himself to be enticed out of it by anything but evidence.

In this respect nothing is more important to remember, and nothing is more often forgotten than this :—*Whoso makes an assertion, upon him lies the burden of proof.* The time, labour, paper, ink, and temper that are wasted every year by neglect of this maxim are altogether incalculable ; and the waste is not less, indeed I think it is more, in matters that are called scientific, and by men that are called scientific, than in any other field of human endeavour. When we are confronted with an assertion that appears to be false, or pernicious, or extravagant, or baseless, our first and natural impulse is to deny and controvert it ; and hence arise most of the endless controversies of scientific men on scientific subjects. The impulse is a natural one, but it is injudicious, and the course adopted is injudicious and unnecessary. When such an assertion is made, the proper course is not to deny it, nor to attempt to controvert it, but to call upon the asserter for proof. If, as sometimes happens, he can bring forward no evidence in support of his assertion, *cadit quæstio*. Except for fanatics and other irrational persons, the matter is at an end. If he responds to the invitation, and brings forward evidence, or what he thinks is evidence, of his assertion, then our duty is to examine that evidence, and ascertain whether it does in fact bear out the assertion or not. In many cases it will be found that what is adduced as evidence has no bearing at all on the assertion ; and when it has, it will usually be found that what is merely evidence is put forward as proof.

For there is a vast difference between evidence and proof, a difference that is not often recognised. I have found the assertion of this difference has aroused astonishment and

incredulity when I have made the assertion even to very intelligent and highly educated men, accustomed to form independent opinions. The difference is this :—

Anything germane to the issue and consistent with the assertion is Evidence of the assertion.

Proof is evidence that is inconsistent with any alternative assertion.

Thus, to take an illustration of Lord Bowen's, if a man is seen coming out of a public house and wiping his mouth, that is evidence that he has been having a drink. It is germane to the issue, and is consistent with the assertion. But it is not proof that he has had a drink. It is consistent with several alternatives. For instance, he may have gone in to the public house to fetch a friend out, and that friend may have hit him in the mouth for his pains. But if he has been seen to raise a full pint pot to his mouth, and if when he lowered it the pot was found empty, that is proof that he has had a drink, for it is evidence that is inconsistent with any alternative.

If these three principles are faithfully observed :—to lay the burden of proof upon the assertor, to examine the evidence, and to accept nothing as proof but that which is inconsistent with any alternative, we shall effectually safeguard ourselves from believing any assertion that we ought not to believe. Unfortunately for the cause of truth, this is not the common practice. Not only are assertions commonly received, accepted, and believed without proof, but they are commonly believed without the evidence for them being examined and tested, and even without any evidence, worthy the name, at all. Many instances have already been given in previous chapters in this book, and many more must be known by experience to every thoughtful person. The belief in witchcraft was supported by abundant evidence, much of it of a very cogent character ; but in no case was there proof, and it is now generally abandoned. I say the evidence was cogent, and in fact it was a great deal more cogent and satisfying than the evidence for many beliefs that are still very generally held. Many persons confessed that they were witches, that they used charms and spells and the other armamentaria of witchcraft, that they had personal colloquies with the devil, that they rode on broomsticks, and so forth ; and they confessed these things well knowing that their confessions would bring upon them a cruel and agonising

death. Yet they confessed. As to part of these confessions, there is little doubt that they were true. The witch believed in the efficacy of spells and charms, and no doubt she did use them. The effects for which she employed them did no doubt in some cases follow. The objects of her malevolence did fall ill ; their cows did slip their calves ; their milk did turn sour ; their children did have fits ; and so forth. The evidence was abundant ; and it was cogent ; but it was not proof. It was not proof, but in an uncritical age it passed for proof, and the wonder is, not that the belief prevailed so extensively, but that it ever died out ; for we find other beliefs now held with equal tenacity, beliefs that have not behind them any of the ancient prescription that attached to witchcraft, and that have not in their favour a twentieth part the tithe of the evidence that witchcraft could show. We should no longer believe in the efficacy of the spell that has been quoted on a previous page, but we still believe in the efficacy of two tablespoonsful three times a day ; and a sick man would consider himself defrauded if he did not get them.

Such a belief, too, is that in the efficacy of what is called psycho-analysis. The fundamental doctrine of this strange faith is that every disorder of mind is caused by repressed sexual passion. Of this doctrine there is not only no proof, but there is positively no evidence that is worth the name of evidence. In the first place, the universal repression of sexual passion is a mere assertion, and no proof and no evidence is adduced of any such general state of affairs. Secondly, granting the universal repression of sexual passion, there is no evidence that this repression can produce mental disorder. Not one of the nine or twelve methods, that are set forth in Chapter VI for ascertaining causes, has ever been applied to show that repressed sexual passion has or can have any causal influence in producing mental disorder. The assertion is exactly on a par with the assertion that sour subsoil produces canker in fruit trees. There is no evidence that the subsoil is sour, or if it were that it could cause canker. It is much less rational than the assertion that the positions of the planets govern the fortunes of human beings, for there is plenty of evidence that the planets do exist, but there is no evidence at all that repressed sexual passion exists in most cases of mental disorder.

Another assertion of the psycho-analyst is that if you have difficulty in recalling a word, the difficulty is caused by an involuntary exertion of will (which is of course a contradiction in terms) or an unconscious exertion of will (which also is a contradiction in terms) by which the word is thrust out of the memory. There is no evidence of any such exertion of the will, and a contradiction in terms is an axiomatic impossibility. It is inconceivable, and its contradictory is the strongest and most assured certainty that the mind can entertain. This unconscious volition is exerted because of the association of the forgotten word with some painful experience or painful idea: that is the assertion of the psycho-analyst. Of course, in the multitude of words that are forgotten there must be some that have some unpleasant association; but there are many that have no such association. How do the psycho-analysts surmount this difficulty? With the utmost ease. They say 'You cannot remember any such painful association, but it is there nevertheless. The fact that it is painful causes you to drive it out of your mind, and so to forget the association. The word is painful to you, but you do not know that it is painful. The pain is unconscious pain.' Well, if it pleases them to juggle with words in this manner, there is no reason why we should interfere with such a childish occupation, until they proceed to apply their doctrine with disastrous effects to the treatment of cases of mental disease. Then I think it is time to protest. Then I think every honest man should call upon them for evidence. Not, indeed, for evidence of unconscious pain, for we might as well ask for evidence of a solid liquid, or a round square, or a protuberant hollow; but for evidence, first that every forgotten word has a painful association attached to it, and second, that if it has, this painful association is the cause of the forgetting. Of course there is and can be no such evidence, let alone proof.

But although there is not and cannot be any such evidence, the resources of the psycho-analyst are not exhausted. He makes assertions that may be evidence, but that he pretends are proof. Look, he says, at the cures that I effect by proceeding on the hypothesis that my doctrine is true! And he relates case after case that can only be paralleled by So and So's Institute for the Treatment of the Deaf, or Thingamy's Cure for Consumption. It is no doubt quite true that some cases of

mental disorder will recover even if treated by psycho-analysis, though how much sooner they would have recovered without it we do not know ; but it is also certain that many cases that might, according to our experience of similar cases, be expected to recover rapidly, remain ill for an indefinite time under treatment by psycho-analysis. I am reminded of a case that was related to me at the height of the craze for treatment by sour milk, which preceded the craze for psycho-analysis. A physician, who had had no experience of cases of mental disease, told me that he had treated by the administration of sour milk a gentleman who, from the physician's account, was suffering from a mild attack of melancholy, 'and' said the physician triumphantly, 'in six months he was quite well !' I did not tell my friend that six months is the usual maximum duration of that malady, and he departed rejoicing in his adoption of such an efficacious mode of treatment. The recovery of the patient was evidence of the efficacy of his treatment, but it was not proof. It was not inconsistent with every other explanation. It was a good case of the fallacy *post hoc, ergo propter hoc*. The effect did follow the alleged cause, but no connection between them was traceable.

It is a little surprising that in these days, when the merits and wonders of Science are so loudly acclaimed, that so few people, even in a learned profession like that of medicine, should have even a rudimentary notion of what constitutes proof ; of what constitutes evidence ; of the difference between evidence and proof ; and of the grounds upon which causation may properly be assumed. It has been the part of Logic to teach these things, but unfortunately logicians have even less knowledge of them than physicians, and it is a safe assumption that anything taught by logicians is false.

Assertion may be accepted, then, when it is borne out by experience ; but there is another mode in which assertion may be corroborated, and when this mode is fully and freely employed, hearsay evidence may properly become the ground of belief as assured and as certain as even the concurrence of innumerable experiences. This method is the concurrent testimony of a plurality of witnesses. Hearsay evidence becomes more trustworthy the more numerous, the more unanimous, and the more independent of one another the witnesses ; and when innumer-

able independent witnesses concur unanimously in an assertion, that assertion must be accepted, unless it violates our own experience. If, however, the assertion violates our own experience, experience which has been tested, considered, and proved, which is plain and inescapable, then no concurrence of testimony, however numerous, independent, and unanimous the witnesses, ought to shake our belief.

Whately argued, ironically, the non-existence of Napoleon Buonaparte, by showing that each witness, or set of witnesses for his existence, taken separately, might have had good reason for lying. His argument was directed against the independence of the witnesses, and is based upon the assumption, which is sound as far as it goes, that the unanimity of different witnesses goes for nothing if it can be shown that they had a common and paramount interest in lying. The difficulty of establishing the thesis increases, of course, with the number and variety of the witnesses ; and if the number is small, and all are bound together in a common interest and a common character, it may well be established ; and thus do counsel often try to discredit the corroborative evidence of witnesses in courts of law. But when, as in the case of Napoleon Buonaparte, the witnesses are innumerable, and are of the most divergent interests—friends and foes, admirers and contemners, rich and poor, natives and foreigners, beneficiaries and sufferers,—the attempt to discredit them all must be hopeless. No one familiar with the history of the time can really doubt that Napoleon Buonaparte existed ; and the belief is as assured and certain as any empirical belief can be. We can no more doubt it than we can doubt that trees grow upward, or that unsupported bodies fall downward.

Our belief, that is to say the belief of stay-at-homes, in the existence of India, rests upon similar grounds, and is similarly assured and unassailable. We have never been there : we have never seen it : we have no experience of it ; but we cannot doubt it. We can no more doubt it than we can doubt the existence of our own parish or our own home. The belief rests upon no experience of our own : it rests entirely upon hearsay ; but upon the hearsay of witnesses innumerable, independent, and unanimous. It is the accumulated evidence of at least five generations of men. The witnesses belong to many countries, many classes, many occupations, and have many, and often conflicting interests. They are thus completely

independent of one another. And they are unanimous. No one has set out to find India and come back to deny its existence. We believe it implicitly, and we ought to believe it. The evidence is sufficient.

But however numerous, unanimous, and independent the witnesses to an assertion, we ought not to believe it if it plainly contradicts our own plain experience. If ten thousand men of integrity and character should unanimously assure me that the sun gives no light, or that it rises in the West and sets in the East, or even that on but one portentous occasion it did so, I should not believe them; and I ought not to believe them. It might be said that an occasion so bizarre could never occur, and that it is futile to make such a supposition; but it is not futile. No such number of persons have ever made this particular assertion, it is true; but a very large number have made, and continue to make, assertions that contradict quite as flatly experiences quite as constant. For instance, every writer of a book on Logic, and their name is Legion, for they are very many, asserts that the only form of proposition is the proposition which has 'is' or 'are' for its principal verb; and virtually that this is the only verb in use in any language. I, being familiar with many verbs, and finding many verbs used by every one of the writers who assert that there is only one, refuse to believe this, and rightly refuse. So, too, every writer on Logic declares that every act of reasoning consists in bringing a particular instance under a general rule, or proceeds through a universal, as he calls it. As I know of multitudes of modes of reasoning which are not thus constituted, and in which there is no universal; and as logicians admit that there are arguments in which they cannot find a universal, though they have been searching for it for two thousand years, I refuse to entertain this belief. In fact, I could not if I tried. The unanimous testimony of innumerable logicians does not weigh a featherweight with me against incontrovertible experience. Again, innumerable alienists testify unanimously that madness and unsoundness of mind are the same thing; but when I find many forms of unsoundness of mind that are quite compatible with sanity, and frequently occur in the sane without disturbing their sanity in the least, I do not believe, and cannot believe, the testimony of the alienists, even though they are very many, and they are unanimous.

In the last two cases, those of the logicians and the alienists, it will be seen that although they are numerous and unanimous, yet the third element is wanting—they are not independent, and this it is that vitiates their testimony. The logicians are not independent of one another, for they have all drunk of the same fount; they have all been indoctrinated with the same belief from the same ultimate source; they have all learnt the same silly system; and none of them has had sufficient independence of mind to trust to his own experience rather than to authority. It is much the same with the alienists. They have all been taught the same false doctrine with the same air of assurance as if it were an axiomatic certainty, and none of them has taken the trouble to compare the teaching with his own experience. No doubt the retention of these beliefs in the teeth of plain and frequent experience to the contrary is partly due to intellectual inertia, or, to use a plainer term, laziness; partly to timidity of authority, or, to use a plainer term, cowardice; but it is also largely due to that influence of all upon each which is one of the penalties we pay for the benefits of social life. It is difficult to maintain a belief, or to reject a belief, against the unanimous opinion of our fellows—of those of our fellows with whom we are associated. It is the tyranny of what 'They say' that quells our opposition. These beliefs of the logician and the alienist rest upon the same basis as the belief that it is unlucky to spill the salt, or to cross the knives, or to view the new moon through glass, and a hundred other such absurdities. You can no more persuade a logician that he is constantly constructing, and asserting, and denying propositions with active verbs, or an alienist that he is constantly witnessing disorders of mind that are not insane, than you can persuade a seafaring man that it is not unlucky to go to sea on a Friday, or a rustic that it is not unlucky for a hare to cross his path. Superstitions are not assailable by reason, nor do they depend upon evidence; and counter-evidence has no effect upon them.

NOTE ON THE MEANING OF 'FACT.'—Strictly speaking, a fact is a thing done, and means 'that which has happened'; and in this sense I have defined and used it in previous writings. In this book I have somewhat extended the meaning of the word, and the extension needs justification. The

extension to that which exists, or has existed, and also to that which happens or is happening, needs but little justification, and will, I think, be generally allowed. That which exists has come to exist by way of some happening ; and though it is not itself, strictly speaking, that which has happened, it is the result of that which has happened ; and the same is true of what has existed. There would be little or no impropriety in speaking of the existence of the earth or of Julius Cæsar as a fact. The real need of justification is for the extension to the future. Can we justifiably speak of that which will certainly happen as a fact ? Manifestly, in the strict meaning of the term we cannot. But there is no other word that will cover both what has happened and what is about to happen, and a word to cover them both is wanted. I have therefore taken this liberty with the word 'fact' in this essay, and for the present purpose ; but in other connections I should still use it in its strict sense.

Sir Clifford Allbutt takes me to task for speaking of the 'fact' of gravitation. This, he says, is an illegitimate use of the word, and an instance of the detestable misuse, which I deprecate as much as he does, of the term 'fact' for the term 'theory.' Gravitation, he would say, is not a fact, but a theory to account for facts. The facts are that ponderable bodies move towards each other, and we account for this movement, this fact, this actual happening, by the theory that they attract each other. Manifestly he is right, and at first I was inclined to confess *aliquando dormito* ; but on retracing the course of my thought, I find the use defensible. As explained in the text, we have no direct knowledge of fact. All that we have direct knowledge of is evidence ; but when the evidence is conclusive, it is legitimate shorthand to speak of our knowledge as if it were knowledge of fact. Now, if ponderable bodies do attract each other, that is fact : that is what happens ; and in any individual case of attraction, such as a heavy body falling to the ground, the appearance of falling is evidence of the fact of falling ; and the fact of falling is evidence of the attraction that produced the fall. And in the latter case the evidence we now have is as conclusive as in the former. The fact-in-itself we do not know : we know only the evidence for it ; but the evidence that the body falls is conclusive, and therefore we may speak of the fall as a fact ; and I submit

that the evidence of gravitation is quite as conclusive, and that we may, without undue straining of the meaning of the word, speak of gravitation also as a fact. At any rate, we may so speak of it in any individual case.

Summary.

The different meanings of 'believe' are defined, and the meanings of various cognate expressions explained. An assertion of any degree of belief or disbelief expresses an attitude of mind either directly towards a fact, or, while directly towards a statement, indirectly towards the fact stated.

A fact means anything existing or happening, in the past, present, or future.

Belief ought to conform to fact, but cannot be directly related to fact, for we have no direct knowledge of fact. Between belief and fact there is always the intermediary of evidence. It is evidence and not fact that impresses our minds, and when we have brought our belief, or the want of it, into accordance with the evidence, we have done all we can, and can do no more.

Evidence is of three kinds :—Evidence of sense, evidence of reason, evidence of hearsay.

Evidence of sense is certain as to the sensation only ; but sensation is of little value until it is interpreted, that is, until its source or cause is arrived at by the elementary process of reasoning called perception. This process may be faulty, and the percept false, or erroneous.

Evidence of reason gives us two criteria of certainty. That which cannot be conceived is certainly false, and its contradictory is certainly true, and constitutes an axiomatic truth or certainty. It is necessary, in using this test, to be careful not to confuse, as Mill and Spencer did, inconceivability with incredibility.

Empirical certainty rests upon constancy in experience. That relation which has been found constant (*i.e.* never contradicted) in experiences diverse and incalculably numerous, is true for us, and cannot be believed to be false, although its contradictory may be conceivable.

If the relation is not constant in experience, then the degree of belief ought to correspond with the proportion that the

positive instances in experience of the relation bear to the negative instances, in which the terms of the relation occur apart. The more nearly constant in experience the relation, the more carefully should apparent exceptions be scrutinised.

Evidence of hearsay may be maximally trustworthy or may be worthless. The following are the criteria to be depended on :—

(1) The statement must be understood in the same sense by the receiver as by the assertor.

(2) The witness must be a witness of truth so far as he knows the truth.

(3) The witness must have means of knowing the truth.

(4) The hearsay evidence must not be inconsistent, or even incongruous, with experience.

Whoso makes an assertion, on him lies the burden of proof. No attention should be paid to bare assertion unsupported by evidence.

Evidence is anything germane to the issue, and consistent with the assertion.

Proof is evidence inconsistent with any alternative to the assertion.

The evidence of a single witness may be received in proportion to his previous record for truthfulness, and in proportion to his responsibility, that is to say to the ill-consequences that would accrue to him if he were found to have given false testimony ; also to his freedom from interest and bias in making his assertion.

The evidence of a plurality of witnesses is valuable in proportion to their independence of one another. Evidence of many independent witnesses goes to prove an assertion if they have means of knowing the truth, and if the assertion is consistent with experience. Otherwise, the evidence of witnesses, however many and however unanimous, has no value.

The Employment of Female Nurses in the Male Wards of Mental Hospitals in Scotland.⁽¹⁾ By GEORGE M. ROBERTSON, M.D., F.R.C.P.Edin., Physician Superintendent of the Royal Edinburgh Asylum, Morningside, and Lecturer on Mental Diseases in the University of Edinburgh.

TEN years ago I was requested by the Secretary of the Medico-Psychological Association to open a discussion at the annual meeting of the Association on this subject. It was then regarded by some asylum medical officers as "the topic of the hour," largely because of certain views on administration which I had expressed, and certain innovations in methods I had made at the Stirling District Asylum.

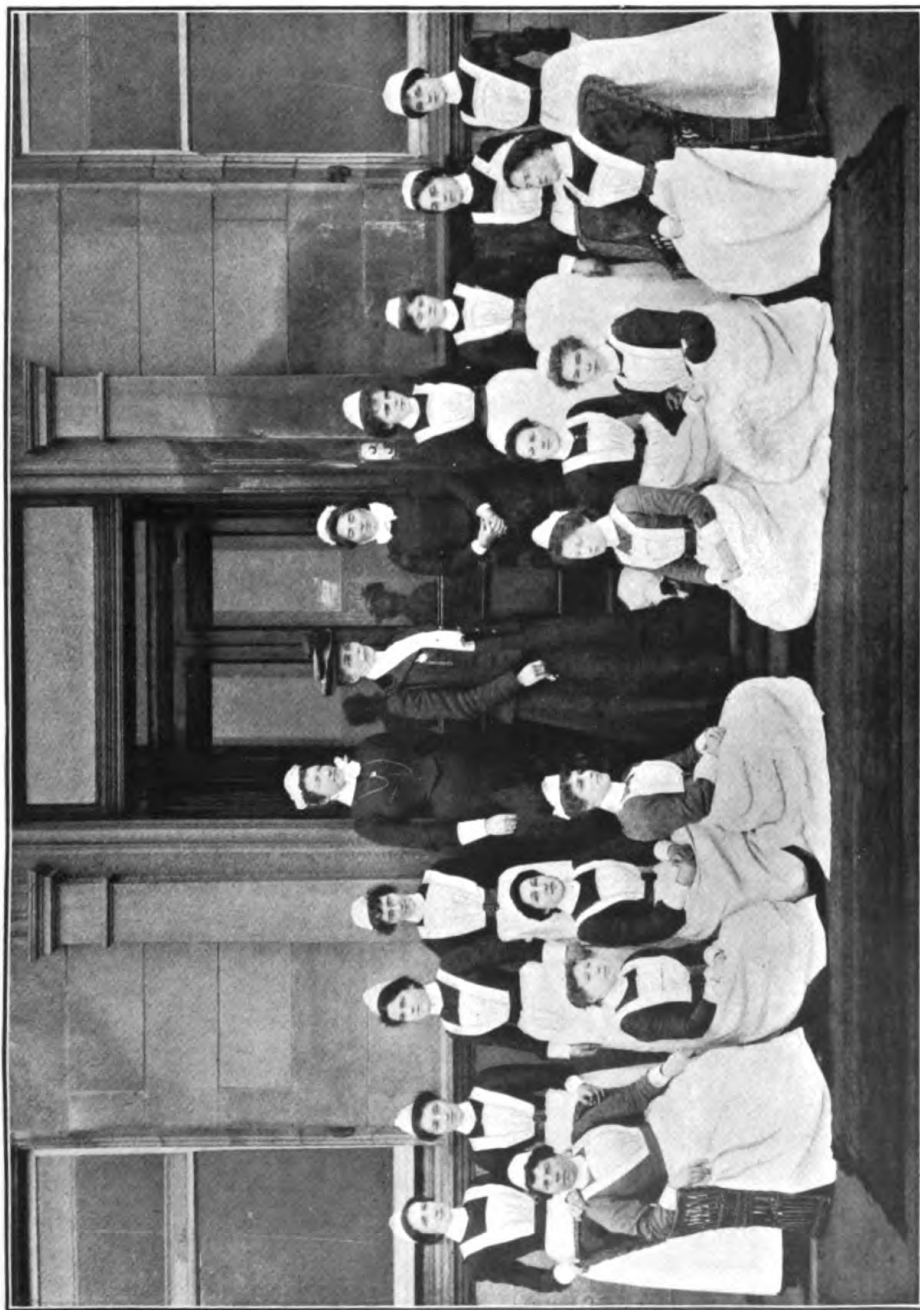
This method of caring for the insane has again come into prominence on account of the somewhat alarming position that has been created by the shortage of male attendants in asylums. No class of the community has done its duty by voluntary enlistment for the war more loyally, and the difficulties caused by the departure of attendants, and the impossibility of getting suitable men to replace them, have been relieved in many asylums by the introduction, for the first time, of female nurses on the male side. In many other institutions the advisability of taking this departure from established routine is being seriously considered. Great interest has, therefore, revived in this method of care and nursing, and I have had the unusual distinction conferred upon me of being asked for the second time by the Secretary of the Association to open a discussion on it. This is now a much easier task for me than it was ten years ago, for during the interval the principles and practices then advocated have been very widely adopted in Scotland. It is not too much to say that they now form a characteristic and firmly established feature of the modern Scottish system for the care of the insane.

Many of us have now grown so accustomed to female nursing, and value it so highly, that, on contemplating the subject, the question that comes most readily to our minds is, Why were women not always employed? To others, who only know the mental hospital as it now is, with its carefully designed accommodation and its comfort, its good order and

discipline, its skilful and intelligent nursing staff, its prevailing atmosphere of consideration for the patients and their medical care, the question also seems a very obvious one. But the mental hospitals of to-day are not less remote from the mad-houses of 125 years ago than the period we live in from the Bronze Age, though we inherit many archaic traditions and practices from them. The madhouses at the end of the eighteenth and the beginning of the nineteenth centuries were not hospitals; they were prisons for the safe custody of a dangerous class. Little wonder, then, that the methods adopted in them were those of the prison, that "keepers" alone were employed on the male side, and that women were rigidly excluded from it. The modern mental hospital can justly claim to be classed with other medical institutions; but, if so, it should fall into line with them by the discarding of an anachronism, and by making use of women's mothering instincts, and natural gifts for the nursing and care of male patients, as has been done in other hospitals. There rests, it seems to me, a heavy responsibility upon those who now fail to do so.

(1) *Auxiliary Female Care.*

The story of the introduction of women's help on the male side of asylums forms an instructive chapter in the history of the care of the insane, but it is only possible here to refer to the most important landmarks. Judging by the inertia shown with regard to their employment that still exists in many quarters—although in a neighbouring country its success is an established fact—the man who first employed women in this way must have been of a very independent and original spirit. He was no less a person than Dr. Samuel Hitch, the founder of the Medico-Psychological Association. He introduced this system into the Gloucester General Lunatic Asylum in the very same year that he founded the Medico-Psychological Association—namely, 1841—and could he have survived till to-day to see the development attained by the twin offspring of his mind, he would have much reason to be proud of both of them. Dr. Hitch employed the wives of his married charge attendants to help their husbands in the male wards, and I was informed by his widow that it was because of the harsh manner in which the male patients were then treated by the



Nurses on male side, Stirling District Asylum, 1902.

To illustrate paper by Dr. G. M. ROBERTSON.

Adlard & West Newman.

attendants that he was induced to take this step. This statement is confirmed by the Minutes of the asylum, which I was permitted to see, in which it is recorded that a husband and wife had charge of the refractory ward. Dr. Hitch's lead was followed by many English asylums during the next forty years.

Another step in advance was taken in 1883 by Dr. R. M. Bucke, of the London Asylum in Canada, who employed widows of good character in the male wards. Dr. Bucke was one of the most striking personalities of the American Medico-Psychological Association, and this experiment in his hands was a complete success.

A third step was taken by Sir Thomas Clouston, who had adopted Dr. Hitch's system by placing a married couple in charge of the male hospital at Morningside. The husband then died, and in 1890 he appointed the widow in full charge, with the male attendants under her authority. He permitted her to engage the services of two ordinary asylum nurses to assist her, and occasionally female patients would help as well.

These three methods for the employment of women on the male side—namely, Dr. Hitch's, Dr. Bucke's, and Dr. Clouston's—illustrate what I regard as the phase of *Auxiliary Female Care*. Its defect lies in the fact that the nurses were few in number, and only assisted the male attendants, and the bulk of the nursing, even in those wards in which they were employed, continued to be done by the male attendants. It would appear that no danger was apprehended to these women from the violence of the patients, but the selection of wives or widows of good character indicates that the risk of misconduct was recognised, and thus guarded against.

(2) *Entire Female Nursing.*

The first step towards the system by which a group of male patients is entirely nursed by women was taken by Dr. Turnbull in the Fife and Kinross Asylum in 1896. He placed a ward containing thirty male hospital patients, by day only, entirely under the charge of female nurses. Owing to the construction of the hospital very efficient supervision was capable of being

exercised over these nurses by the matron and the charge-nurse of the female hospital. The proximity to the other male wards also enabled male help to be immediately summoned if necessary. The Scottish Commissioners in Lunacy at once realised that Dr. Turnbull's innovation constituted an important new departure, and a great advance on anything that had been attempted before. Acting on the advice of Sir John Sibbald, who thought very highly of it, a similar arrangement was soon after introduced into the Glasgow (Gartloch), Lanark, and Perth District Asylums. In the year 1900, at the Stirling District Asylum, I placed a group of male patients, by night as well as by day, under the charge of female nurses, thus for the first time frankly handing over the entire care and nursing of insane male patients to women alone during the whole twenty-four hours.

These arrangements just described may very appropriately be called the Scottish system of *Entire Female Nursing*, for its special features were not only developed in the Scottish asylums, but it has been very extensively adopted by them for nearly a generation. It is a totally different thing in practice from the system I have called that of *Auxiliary Female Care*, in which a few women assisted the male attendants. All who have had great experience of women nurses in male wards agree in saying that they are infinitely more useful if placed in sole charge of a group, and they much prefer it themselves. The patients benefit more certainly from their ministrations, for it provides a guarantee that they must be nursed by women. Under the system of *Auxiliary Female Care* there is a division of labour in the ward, and the nursing may be done by the men, and the cleaning up and household duties by the women. The danger of misconduct which has been already referred to decreases as the number of nurses employed becomes greater, and is least when the care of a whole ward is handed over entirely to women. It must be remembered, too, that supervision and discipline in the asylums of the early and mid-Victorian period, when the system of *Auxiliary Female Care* was employed, were not so perfect as they are now. What with the advent of efficient supervision, and of the good class of men and women now engaged in asylum work, difficulties of this nature can be overcome, and need not be feared in a modern asylum.

(3) *The Hospitalisation of the Asylum.*

The employment of female nurses on the male side has not stopped at this stage of evolution in Scotland. Their introduction was in very large part due to the desire to make use in asylums of the very high standard of skill in nursing possessed by those who had been trained in our general hospitals. Three-quarters of a century ago, in Dr. Hitch's time, "Sarah Gamp" was in the flesh (Martin Chuzzlewit, 1843), and there cannot have been much inducement to employ her, or others like her, on the male side for the sake of their skill in nursing. Dr. Hitch's first female nurse attended to refractory patients! If this highly skilled form of nursing be desired, then women must be employed, for unfortunately men do not receive this training in our general hospitals. Large numbers of trained hospital nurses have thus been appointed during the last twelve years in the Scottish asylums to important positions for the sake of their technical skill and training. Dr. Campbell Clark was the first to appoint a trained hospital nurse (Miss Mary Macfarlane) to the post of matron, at the Kirklands Asylum, Bothwell, in 1880. In the following year he commenced the systematic teaching and training of his asylum nurses and attendants, as was the practice in general hospitals. The idea took root, and in 1885 the Scottish Division published the *Handbook for Attendants on the Insane*, the most enterprising action ever taken by a Division of the Association. This handbook, as is well known, has since been adopted by the Medico-Psychological Association, and has led to the granting of the Certificate for Proficiency in Mental Nursing, and to the Registration of Certificated Mental Nurses. The first hospital nurse to work within the wards among insane patients and asylum nurses was appointed by me at the Perth District Asylum in 1896. This was an important step, not only on account of its direct influence on ward work, but because it created a supply of hospital nurses who were specially trained for the duties of asylum matronship, which had not previously existed. The demand for these became so great that over three dozen of my own nurses have received such appointments in other institutions. As all hospital nurses are accustomed to attend to male patients in the general hospitals, they think it the most natural thing in the world to continue to take charge of male

patients in asylums. They have gradually extended the sphere of their usefulness far beyond the limits of the hospital wards on the male side to which they were first appointed, and have invaded other departments. They have introduced innumerable reforms which have approximated the methods employed in the asylums to those in the hospitals, and amongst these the greater employment of women in the male wards is only one. The trend of events in Scotland has been such that this employment of female nurses in the male wards, when seen in its proper perspective, is found to be only a part of a much greater scheme or ideal that has flowed like a tide over the land—that of the *Hospitalisation of the Asylum*. It is fifteen years now since this ideal was organised into a working system at the Stirling District Asylum, and a paper describing the methods employed there, entitled “Hospital Ideals in the Care of the Insane,” was published by me in the *Journal of Mental Science* in the year 1902. The details of this system go, however, beyond the scope of the present paper, and include the building of asylum hospitals, the bed treatment of the insane, the study of the physical aspects of mental disease, etc.

Time is not only a great healer, but a great judge, who decides most appeals by very convincing logic, and fifteen years is a liberal period in which to test the merits of a system of asylum management. It was said thirteen years ago by a distinguished member of our specialty that the “nursing of male insane patients by females” was “preposterous,” and that to run everything in asylums on hospital lines was “a great fad.” It must be hinted in palliation that this authority had not had any experience of the methods which he criticised so freely. This method of nursing is now as distinctive and as firmly established a feature of the Scottish system of care of the insane as the well-known Boarding-out System. It is employed in some measure or other in all but two of the important asylums of the country, and in these the Superintendents have so far failed to introduce it, not because they are opposed to it on principle, but on account of structural difficulties with regard to supervision, housing, etc. This wonderful unanimity of opinion and practice amongst Scotsmen, whose national proclivities do not tend to concord, is remarkable testimony in its favour,

and points to the manifest practicability and overwhelming merits of the system. The *Hospitalisation of the Asylum* is still on the whole an ideal to be aspired to, but it too is steadily developing and gaining ground year after year. It will perhaps come as a surprise to many to know that in a fourth of the asylums in Scotland, and among them are included some of the large ones, the matron is head of the nursing staff on the male side as well as on the female. How many hospital nurses are employed as sisters or assistant matrons it is impossible to say, but it must be large, for twenty-two were lately doing duty in the military hospitals. A system such as this, which has survived the test of fifteen years' experience with enhanced reputation and has become national in scope, must now have some other qualification than "preposterous," some other appellation than "a fad," applied to it by all fair-minded and reasonable men and women. The man who sees no good in it, who thinks its adoption impossible, must believe that the Scottish Board of Control and the majority of the Medical Superintendents in that country, in other respects with the reputation of being shrewd and level-headed, are labouring under an obsession!

Having briefly described the history of the introduction of female nursing in the male wards of asylums, I shall now refer to certain objections and difficulties.

In the first place, it is said that this work is not a suitable form of employment for women. In reply to this, it may be pointed out that the work in question is actually being done by women in all but two of the Scottish asylums, and the consensus of opinion in Scotland, where experience of the system is unsurpassed, not only does not support, but contradicts the objection. The personal offices that all nurses, including hospital nurses, may be called upon to perform in the nursing of adult males may be objected to, and have been objected to. Between fifty and sixty years ago, before the movement started by Florence Nightingale had been given time to effect a reformation, I have been informed by my teachers that no woman with any self-respect or regard for her reputation nursed adult males in our general hospitals. Women from every rank of society are prepared to do so now, and are held in the highest esteem if they do. Is it not then clear that it is not the work alone that matters, but

that the spirit in which it is done, the methods that are employed, and the character of the person who comes to the work, are essential elements in any judgment upon it? If, therefore, the status of hospital nursing can be so transformed in the estimation in which it is held, may not a similar change, by the adoption of similar methods, take place in connection with asylum nursing? If approached in the proper spirit, if performed by approved methods, and if undertaken by the right persons, this form of employment has been found in Scotland quite suitable for women.

In introducing female nurses into the male wards for the first time, the most reliable women on the staff would naturally be selected by anyone who wished the experiment to be a success. They should be experienced, and they should not be young. The working unit should not be less than four in number. It is a great advantage to place a hospital nurse with asylum experience in charge of them. The methods employed in handling the patients and in the management of the ward should be those which have been adopted in general hospitals, on account of their regard for the decencies. It is naturally found that these can be most readily adopted for those patients who are confined to bed. When the patients are dressed and going about it is advisable to employ auxiliary male care, in the form of one or two trustworthy married attendants, to bathe the patients and to assist in other ways if required. I have never had the least difficulty in arranging for this small amount of auxiliary male care, and I have always found convalescent and working male patients willing to help the nurses.

In the second place, it has been said that the male side of an asylum is not a fit place for a woman to be in. The presence of good women always has a refining influence on male society, and whatever the conduct of male patients in speech and in general behaviour may be, the advent of female nurses among them, if managed with care, will effect a change for the better. The capacity of the insane for education in good habits, while not illimitable, is very extensive, and in practice it is never exhausted in our large institutions. Were we not so familiar with it, their good behaviour and self-control, for example, during divine service, would astonish us every week as it does those who see it for the first time. If,

therefore, it can be alleged of any asylum that its male wards are not a suitable place for women, then the sooner a reformation be effected the better for the patients there, for it is not a condition that need continue indefinitely.

It is then asked, Are women who object to nurse male patients to be compelled to do this work? The answer is, Of course not. There are women who object to nurse male patients, just as there are women who object to be nurses at all, but of the hundreds who have been nurses in the asylums of which I had charge those who have objected during twenty years can be counted on the fingers of one hand. As a matter of fact, the vast majority prefer to do so, and the reason is not difficult to find. Male patients are always less troublesome and excitable than female, and women find that they receive more courtesy and readier obedience from men than from members of their own sex. They do not require to receive any extra salary to do this work, once it has been started, for the women are engaged, as they are in general hospitals, simply to nurse, and it is all in the day's work whether they nurse patients of the male sex or of the female. It is very doubtful if there be any saving in expenses by the employment of women instead of men, because, owing to the higher standard of hospital care aspired to, there is usually found to be a larger number of nurses required. In Scotland any saving there may have been from this source has been more than expended on an increased night staff, which is proportionally much larger than that employed in English asylums, and on hospital nurses for purposes of supervision, which is a practice that has now been largely adopted.

Lastly, it has been pointed out that many male patients, owing to their sexual proclivities, cannot be cared for by women. This is undoubtedly true, but the remedy is a simple one. Do not place them under women; let them be cared for by men. It is unthinkable that any experienced administrator would allow a simple difficulty of this kind, with an obvious remedy, to deter him from the introduction of women nurses. It may give him a little more trouble, which at present he escapes, but that is no excuse for avoiding a duty. Every day of the year, in every asylum in the country, a much more difficult and responsible task of an analogous nature is faithfully performed, that of distinguishing the patients who are suicidal from those

who are not, and of making special arrangements for their care. To pick out patients whom it is undesirable to place under the care of women is, compared with this, an exceedingly simple matter.

Far from the employment of female nurses in the male wards of asylums being unsuitable in form, out of place, and objectionable to them, in the high state of organisation and development now attained by mental hospitals, whatever may have been the case in the past, it is most appropriate, and a beneficent duty to the insane male patients under our care. They appear to be the last class of the helpless to benefit from the superior aptitude and skill that women show for the duties of nursing, and this privilege should no longer be denied them, as it is overdue. The reason for this superiority of female nursing rests on a solid foundation—the mothering instinct in women. It is an instinct so strong that in many cases it cannot be suppressed, and must manifest itself in one form or another. There are, of course, exceptional women and exceptional men, and we have all met male attendants who have been kind and devoted nurses. Nevertheless, nursing the sick, the infirm and the helpless, be they sane or insane, is pre-eminently woman's avocation. Sir Thomas Clouston summed up the situation tersely when he said that all his nurses longed to work in the hospital, whereas all his male attendants wished to be kept out of it, and preferred to do outdoor work, and that he never saw a man enjoy sick-nursing in the same way as many women do.

It has been remarked that only a small proportion of the male patients are in the hospital wards ; but is not a great part of the work in an asylum indoor domestic duties which in a private house are also performed by women ? The cleaning and decoration of the wards, the bedmaking, the laundry and repair of the clothing, the serving of the food, and the social functions, are all tasks which in private life usually fall to the lot of women. Can it, then, be doubted that they are as efficient as, if not more so than, men, to perform these familiar occupations in asylums ?

Moreover, it must not be assumed that female nurses are only of use for the care of the sick and helpless in an asylum. One of the surprises of the system in practice has been the discovery that they can usually exercise more control over

cases of mania than male attendants, and the great advantage of their management lies in this fact—that it is based on persuasion, and not at all on the show of force or on compulsion. Excited patients who are ready to fight any man who comes near them will often do anything they are told by a nurse, and they will become calm if they receive a word of sympathy from her. A woman has much the same influence over an insane man, who is not actually delirious, as she has over one who is supposed to be in his sound mind, and it is absurd to assume that all feelings of chivalry and honour die in a man because he suffers from some derangement of the mind.

The proportion of women it is desirable to employ on the male side of an asylum is, according to the Scottish Board of Control, at least 25 *per cent.* of the total day staff on the male side, and 15 *per cent.* of the night staff. These figures are considerably exceeded in several asylums, among which may be mentioned the Stirling District Asylum. It may be taken as a typical county asylum in the accommodation it provides, in its complete organisation, and in the modern methods it employs. It admits over 250 patients annually, and has a resident population of over 800. Dr. R. B. Campbell, its Medical Superintendent, has employed for the last $7\frac{1}{2}$ years, as I also did for an equal period, a staff on the male side by day of which 40 *per cent.* consists of women, there being three hospital nurses, including the matron. By night 27 *per cent.* of the staff consists of women, including the night superintendent, who is a trained hospital nurse.

It has been stated that female nurses are more suitable for asylums admitting parochial than private patients of the richer classes. That has not been my experience at Craig House. This is the department of the Royal Edinburgh Asylum for private patients, and it is quite a separate mental hospital from the West House, which provides accommodation for poorer patients. Of the staff of thirty-two employed on the male side by day to attend to one hundred gentlemen, exactly one-half consists of nurses, including in this number the lady superintendent and three matrons, and, of these, three are hospital nurses. By night six out of a staff of thirteen consist of women, including the night superintendent, who is a trained hospital nurse. These proportions vary from day to day, according to requirements, and they have perhaps been swelled by the war, but there is no

difficulty in employing 40 *per cent.* of women by day and 25 *per cent.* by night in a private asylum like Craig House. Of course there are special difficulties connected with private male patients which are not met with in the case of parochial patients, but the employment of women in their care on the whole is equally advantageous. The opinion of the friends of patients is worth quoting. The most interested relatives of gentlemen consist chiefly of anxious females, be they mothers, wives, or sisters, and nothing in my experience gives them greater comfort than to know that the relatives whom they entrust to our care will be tended by women. Rightly or wrongly, to them it is a guarantee that no violence will be employed, and that the most skilled nursing will be available.

In conclusion, I have to state that these opinions, whatever may be their value, are founded on twenty years' experience of entire female nursing in male wards, and have been gained in four different asylums of which I have had charge during that time. I am now more convinced than ever that the mental hospital, the modern asylum, is only a hospital for the treatment of a special disease, and therefore requires to be run on hospital lines, of which the employment of women in the male wards is only one feature. Although many did not see eye to eye with me in the past, I have learned to be patient, and I have had the satisfaction of seeing these views gradually accepted, and the methods I advocated adopted. The ultimate hospitalisation of the asylum is now only a question of time, and that time has been hastened by the action of many medical superintendents of the English asylums, who, owing to one of the results of the war, have introduced female nursing in the male wards of their asylums for the first time. I trust that the observations I have made may assist others in coming to a similar decision.

(¹) Read in London on February 17th, 1916, at the General Meeting of the Medico-Psychological Association.

*"The Secretes of Alexis." A Sixteenth Century
Psychiater.* By HUBERT J. NORMAN, M.B., Ch.B.

THE sceptics maintain with some show of plausibility that medical treatment—the therapeutics of mental disorder included—has made little progress with the passage of the centuries ; and that what is called progress is really pretentiousness, and is more verbal than actual. Some of the new schools of dogmatists certainly give reason for criticism of this kind ; they bandy high-sounding phrases one against the other, until the plain man becomes confused with the welter of verbiage. It were invidious to specify too accurately. Each one according to his predilections can annotate the context. If he favours the neologisms of that school in which the new oneiromancy and the modified confessional bulk so largely in their dealings with the mentally disordered, he will exempt them from criticism ; and he who considers that treatment should pass along lines less airy and less tenuous will, for his part, look elsewhere for firm ground from which to aim his darts at the flitting shadows beloved of the practisers of psychomancy. Yet, all this granted, a look backwards suffices generally to convince us that, when ephemeral and transient notions are regarded in their proper perspective, there has been a real and valuable progression towards clarity and truth—even, in some cases it may be, attainment. If there is, therefore, such good to be derived from this process of retrospection, one may be forgiven for directing attention for a short space to former times. As we look backwards, however, we are almost dismayed at the similarities which we notice between the errors and follies of those who lived many centuries ago and those of our time. At the first glance it appears that almost do we move in a circle. The same old errors, the same old superstitions in other guises. We are almost prevailed upon to say, with La Bruyère,⁽¹⁾ "En effet les hommes n'ont point changé selon le cœur et selon les passions, ils sont encore tels qu'ils étoient alors," more than two thousand years ago. There seems to be little abatement of what were designated as the "animal passions" ; and along with that there has been an accompaniment of credulity which the few master-minds have not been able to overcome. Superstition

holds its ground in many civilised communities, and as to war—in a time like the present—it is needless to speak. Yet withal we are prepared to maintain that enlightenment is being brought about.

Well, we may "leave the wise to wrangle," and turn from such disputatious matters to the more pleasant subject in hand. In the year 1580 there was published in London an excellent and compendious book entitled *The Secretes of the Reverend Maister Alexis of Piemont*; and it was translated "out of French" by one yclept William Warde. Two years earlier William Harvey had been born, and some two years later Shakespeare was married. It is possible, therefore, that both of them may have perused the *Secretes*. In their day the volumes on medical subjects were not numerous, more especially publications in the English language. Shakespeare's acquaintance with insanity was extensive, as a reading of the plays soon demonstrates. In "Hamlet," in particular, he has dealt at considerable length with matters psychiatric, and incidentally provided some knotty problems for the specialists in morbid psychology. Perchance he dipped into *Maister Alexis, his Secretes*, in search of material. If he did, he found there some "fine miscellaneous feeding"; for the *Secretes*, to quote the sub-title, is a volume "Containing excellent remedies against diverse diseases, wounds, and other accidentes, with the maner to make distillations, parfumes, confitures, dying, Colours, fusions and meltyinges." An Elizabethan homologue of the *Family Physician* and of *Enquire Within*.

Maister Alexis begins by producing his credentials. He states that he had from his early youth given himself to study, and had travelled to many places in order to acquire further knowledge; and had, in addition, learned Latin, Greek, Hebrew, Chaldee, and Arabic. As we shall see in the sequel, a little study of the Hippocratic writings, and a rational application of the teachings therein contained, would have been well repaid, and would have saved the reverend Maister from many of the egregious errors into which his credulity led him.

His reason for setting down his *Secretes* is that, having been called by a physician to see a "poor Artificer, who was marvelous tormented with the stone, and had been two daies without making his urine," he did not make use of his skill

because he thought the doctor wished to "use other mennes things for his owne profit and honour." However, finally, he went ; but it was then too late—he was just in time to see him die. It may be the "poore Artificer" was thus saved a final pang ! So moved was Maister Alexis by the sad death of this man that he decided to keep his Secrete no longer hidden. From smallest causes . . . and the world has been favoured with the "excellente remedies."

His artlessness may be gauged from his first Secrete, which is : "The maner and secrete to conserve a mannes youth, and to holde backe old age, and to maintaine a man alwaies in health and strength, as in the fairest flower of his age." It shall remain a secret as far as we are concerned at present : those who are sufficiently interested may peruse the writings of the reverend Maister for the details. But if they are desirous of rejuvenation, it may be safely stated that any of the other nostrums which have been vaunted as the Elixir Vitæ will equally well serve their purpose. This particular one was, he tells us, "taken out of the long studie and diverse experiences that a Gentleman made by the space of many years in the service of a Nobel Lady, being a thing most certain that an old manne of three score and tenne years, all withered with age, and of a verie evill complexion, and subject to divers kindes of disease, was altered and changed as into the age of sixe or eight and twentie yeres." And yet even Maister Alexis had to pay his debt to time, secret notwithstanding.

However, to the more immediate subject of the present essay, namely, his views upon insanity and kindred disorders. Etiology in these matters has provided a fine crop of hypotheses—demons, malignant sprites, black bile and other morbid humours. Alexis has a theory quite different, at any rate in so far as children are concerned. To heal them of the "Lunatic Disease, which happeneth unto them by reason of a worme with two heddes that breedeth in their bodies, the which worme coming into the heart causeth them to have suche a passion that oftentimes it killeth them," it is only necessary to use a powder containing the "tender stalkes of a Wilding tree, Gentian root, Peonie and Myrrh." This powder is moistened with water, and then placed in the lips and in the mouth of the child. "Doe this three or four times

and you shall see the worme come out dead with his siege." Lest any doubting Thomas should feel inclined to criticise his worm-theory, he adds: "This have I oftentimes seen by experience, and manie children which for lacke of good helpe, have died with such manner of wormes the which afterwarde being opened, men have found the Worme sticking upon their hearts." With such a worme with its two "heddes" one is at a disadvantage; it must be difficult to know which is the business end, that is if it resembled the leech of which the poet sings:—

"Perchance, reluctant being, I have placed the wrong side up,
And the lips that I am chiding have been farthest from the cup."

It must have been almost as troublesome to deal with as the elusive spirochæte.

His secrets are not confined to the treating of children. There is a "notable secrete to heale a madde man, be it that the madnesse come unto him by a whirlyn or giddinesse of the hedde or braine, or otherwise." It is a comprehensive procedure. "First of all, make hym fower Glisters, in fower Mornynge, one after another. Let the first Glistre be simple, that is to saie, made with water wherein ye have boiled or sodden Wheate, Branne, Common oile, and Salt. Let the second be of water sodden with Mallowes, Mercurie, Pellitorie of the wall and Violet leaves, with Oile and Salt. Let the third be of water boiled with Oile, salt sodden with wine and Honie. And let the fourth glistre be of the like decoction that the third was, adding to it Endive, Buglosse, and the toppes of the branches of Walwort. After that this decoction is strained, ye will put to it an ounce of Cassia Fistula, and half a quarter of an ounce of Mitridate. Now having given him these fower glisters, fower sundrie mornynge you shall give him this medicine. Polipodium of the Oke well stamped, a handful or twaine, and wryng out the juice of it, and putte in a glasse the quantitie of twoo fingers hie, puttyng to it twoo unces of Honie roset and a quarter of an unce of Electuarie roset, and as much of Diasenicon. All these thynges beyng incorporated together, give them unto the pacient to drinke at night, when he goeth to bedde, twoo or three howers after the Sunne is set, and give it him luke warm." Then follows an interesting passage anent forcible feeding, should

the patient prove recalcitrant. "If in case he will not take it, binde hym and holde hym perforce, and make him ope his mouth, put some sticke betweene his teeth, and then poure the medicine into his throte, as men doe unto horses. And when he hath taken all, if it be Winter you shall make hym sitte upon his bedde halfe an hower, well covered round about to the intent that he take no cold after it: if it be in Summer ye maie let him goe about the house where he will, but see that he goe not out. When the medicine hath doen his operation, take this ointment followyng: that is to saie, a pound and a half of the juice of Walwort, whereunto you shall adde as much butter: boile this together a goode while; to this there is to be added Camomile and St. John's Wort." With this ointment the patient is to be rubbed all over. This has to be carried out, morning and evening, for a month. On the third or fourth day of the anointing we proceed to more drastic measures. "Burne him with a hot iron upon the seame, or joyning together of the hedde, and at the firste laie upon the marke a Linnen clothe with Barrowe's grease, leavyng it so the space of eight or ten daies: and after wrappe a great Cyche pease in Ivie leaves, and put uppon the said Ivie leaves a peece of a sole of a shoe made fine and thinne, bindyng it under his throte with some bande, or beneath his hedde, so that it may hold on, and change it always at night and in the mornyng." The author does not add—he probably thought it unnecessary so to do—that during the burning process it will be essential to carry out the procedure associated with the feeding—to "binde hym and holde hym perforce." If he does not recover in four months—or "returne to his witte"—the performance must be repeated; and "without doubte (by the grace of God) he shall be whole." But this is not all the treatment: diet and other matters have to be considered. "He must eate at the beginning Chickens, Mutton, and roste veale: after you maie give hym roste and sodde, with potage of amilum, Beets and Mallowes, and also newe laied egges, puttyng spices unto his meat, causyng him sometyme to eate (either in his potage or otherwise) Betaine, sage, Maioram and mint, not sufferyng him in anywise to take salt, sharpe or eger things, poulse corn, Garlike, Onions nor such like: ye maie give him white wine with water; let hym also carry ever about him some sweet odours, and heare

melodie or musicke"—he has the authority of Pythagoras on this point, though he mentions him not—"speak oftentimes soberly and wisely unto hym, admonishing him to be wise and sage, rebuke him of his follie when he dooeth or speaketh any fonde thyngs." At this point he gives support to those who advocate the employment of nurses for attendance upon him who is disordered in his "wittes": and those of us who had experience in this direction may readily agree with him. "In such case," he says, "the authoritie of some faire woman availeth muche, to tell him all these things: for good admonitions are of great virtue and strength, for to establishe and settle a braine, troubled or disquieted with any sicknesse or passion."

He has other remedies if these should fail; and some of them are certainly quaint. For example, take the following suggestions "against the Phrensey."

"The body being purged, it is good to shave the heade, and to lay upon the seame of the crowne of the heade quicke Pigeons (having first cleft them in the backe, and drawen out the entrails) leaving them so upon his heade until they waxe colde: or else little whelps of a Moneth old their garbishe pluckt out: or, if you will, the lunges or lightes of a shepe or whether hote. But because one of the principall causes of the phrensie is the torment of watching, you must labour to provoke sleepe as much as you can, by remedies meet therefore: as with washing his legges from the knees downward, and his armes from the elbow downward, with the decoction of violet flowers, of Nenuphar, of the ryne of Mandragora rootes, and anoynting his temples, the joyntes of the arme even to the hand, and of the legge unto the foote with the oyle of Nenuphar and Poplar mixt together."

No medical treatise in the old days was complete without the Mandrake (or Mandragora); so Alexis introduces it—somewhat surreptitiously—into the remedy. He does not tell us how it should be gathered; whether it might be boldly grasped as if it were a nettle and thus drawn from the ground, or whether it ought to be fastened to a black dog and thus torn shrieking from its resting-place—as the fantastic ritual formerly prescribed as necessary in order to guard against the malign influence of the anthropomorphic plant. At midnight, too, had the direful deed to be done.

Alexis has a remedy also for what may be described as a Piemontese form of manic-depressive insanity—for those “that be Melancholick, and in a furie or rage.” It contains borage, bugloss, sorrel, endive, and many other ingredients, one of which is the “boane of a Harte’s heart”; add to these Amber and Musk and make an electuary. This the “sicke party” has to take “mornyng and evenyng two houres before meate, havyng first made the universal remedies, as purging, letting of bloud, etc.” Another prescription which would serve to “purge melancholic humors, and to remedie the paine of the heade and stomach,” is comparatively simple and one may surmise of some utility; it contained senna leaves, tamarinds, raisins, borage, violets, melon seeds, ginger, and many other ingredients. Again, if one should desire to “drive away the heavinesse of the minde, to accuate the senses, and to make a good memorie,” it is only necessary to “take Balme and braye it, and stipe it till it becomes soft in good wine in an earthen vessel well covered and stopped, then distill it by a Limbecke, and every mornyng give unto the sicke person a spoonful to drinke.” In order to “expell sadnesse” take of the “herbe called Cranes beke, of Rewe, of Pulegium, of eche like quantitie, bray them into poudre, and with sugar make little morsels, and use them.” (O, that sadness in these dismal times were thus easily expelled!) To those who suffered from the “Spleen”—a condition considered by all foreigners to be much in evidence in England—you might administer the ashes of “the wormes called Millipedi, in English Sowes or Horse Wormes”; or “steel filings in vinegar, Gum ammoniac, and Syrup of Bisantins.”

Even if matters went further there was still hope; there is a remedy against the “distillation of the brayne and heavinesse of the head.” It is necessary to “receive the juice of beet-roots into your nostrels, and that will drawe unto it all the humour of the heade, and cause it to come out.” It would take more than that to cause the humour to come out of some heads. This remedy would have appealed to the Reverend Sidney Smith.

For pains of the head there is no lack of treatment; he has even a prescription “agaynst the headache by too much drinking.” One suggestion as to what should be done is to take the “brayne of a Crowe, and seeth it, and then eate it; for

there is none so great a payne of the heade, or none so old, but that it will heale it with a singular virtue." Another remedy for "payne of the head" contains bay berries, scammony, saffron, vinegar, and roses. Yet another which shall "ease you verie much by God's Grace" is made up of black ivy, vinegar, oil, and wine. There is also a "most excellent powder to comfort the sight, and all defects of the head, of the stomache and the disease called Scotomia and Vertigo, and the palsie, and all inwardie diseases: it consumeth the superfluous humidite of the braine, it helpeth the memorie." A comprehensive remedy! It was used, he informs us, by "Frederick the Emperor." As it contained the usual herbs, it probably did not do the Emperor much harm.

The chief weapons in his armoury, however, were to be used to combat epilepsy, *morbis comitialis*, *morbis sacer*, the "Fallyng Sicknesse." It is a disease which has always attracted much attention. It is so sudden in its onset and it produces such obvious symptoms that it is not surprising that in old days people looked upon it as obviously one of the conditions where the sufferer was possessed by a demon. The Romans regarded it as an evil omen if anyone was seized with a fit during the discussion of public business. It was regarded as a supernatural visitation, hence the name *morbis sacer*. Hippocrates, with the shrewdness and absence of superstition which so markedly characterised his outlook upon pathological conditions, maintained that it was no more supernatural than any other disease.⁽²⁾ Alexis naturally deals with the matter at some length. "Take Germander gathered in Maie," he says, "when it is in blossome: drie it in the shadowe and make it in powder. And when you will use it, take the yealke of an egge or twaine, and stirring or breaking it with a spooneful of the said pouder: then seeth it, and give to the pacient to eate. Doe this mornyng and evenyng, eight daies long: but all this while he must abstaine from Wine, and carnall companie of Woman, and from all sorte of Poulse, as Beanes, Peason, Fitches, Tares and suche other, from Salades, Salte Fleshe and from all other things which are of a hard concoction or digestion." This is, he adds, a "verie goodly and notable secrete." Then there is a "hevenlie water" which is nearly a panacea, so much so that one wonders why it should be necessary to invent other remedies. It contains, among

many other ingredients, cloves, nutmegs, ginger, pepper, juniper, sage, basil, rosemary, marjoram, and also aqua vitæ, "which must be distilled five times through a Limbecke." It is, he informs us, "meete for greate Ladies and Princesses." It will cure "new wounds and old wounds, Carbuncles, St. Anthony's Fire"; it is good for the eyes—and here he interposes a delightful saving clause—"so that the eye be not out or loste." Three drops will cure the stone; "Emeraudes" vanish before it; "shrunk and indurate sinewes" become supple; it kills worms "if a manne rubbe his nostrilles" withal; it also "healeth the King's evill, and the disease called the Fallyng Sicknesse, and all other infirmities in the exterior parts of the bodie, and with this water maie a manne washe himself"—rather an expensive procedure—"or els drinke it. It is also good for every cold sicknesse, and restorative for olde folkes, or those that are consumed and debilitate with hunger, sicknesse, or sorrowe of mynde. It conserveth the radical moysture and naturall beate, it maintaineth healthe, and keepeth a man in long life, whosoever useth it as it ought to be used." Which convinces us of one thing—Maister Alexis could even have given hints to the modern nostrum-vender. Truly may it be repeated of mankind, "Ils sont encore tels qu'ils étoient alors!" The shrewd Alexis finishes again with a saving cause, and one can imagine him saying to the irritable epileptic who found himself unimproved after a course of the "hevenlie water" that he had not used it "as it ought to be used."

Another remedy for the same affection—simple and quite as ineffective as the others, our ancient friend notwithstanding—is to take "wheate floure, and kneade it with dewe gathered in the mornyng on Midsomer daie, and make thereof a cake, the which you shall bake, and give the pacient to eate of it, and he shall be healed." There is quite a poetic touch which takes us away from microbes and endotoxins. Some doubt may have been cast upon the efficacy of his remedies. He is not downhearted. There are pills containing castoreum, asafœtida, peony-roots, etc. It is a remedy which "hath been often proved." If the patient is still "tormented with this disease," in spite of all that has been done for him, it is good to make him "smel burnt fethers, or olde shoes, for that reviveth and maketh him come to himself"; or "take a hundred Swallowes, an ounce of Castoreum, as much wine as

shall suffice and of the best that can be found. Distill all together, and give the Patient to drink thereof three Dragmes fasting, this water is also verie good for men that be apoplectique if they be washed with it." It is to be feared that a hundred "Swallowes," even when distilled, would not make a cure. Then there is a "very good receipt which Pope Clement the Seventh tooke in his last Sicknesse." It contains "Mastick, Frankincense, Mace, Cloves: leaves of Gold foil and Silver foil: jacinthes, Emeraudes, Rubies, Granadas, Pearles, red Corall": and "a pounce of man's bloode of the bodye of a very healthfull and fleshie man." All these have to be distilled, even to the tenth time. It is good for various diseases, including "Apoplexia⁽⁸⁾ or falling sicknesse, if they washe their necke with all." One understands why it proved to be the pious Clement's "last sicknesse."

There are yet others to the same purpose. There is a plaster containing Mastick and other substances, which is to be "spread on leather and laid upon the crown of the head." Or take "the Lungs of a Wolfe, and wash them with good red wine, then boyle them, and dress them with Cordiall, and give it in meale unto the sicke person, and he shall be healed: or els take of Opoponack, of Castoreum, of Sanguis draconis, of Antimunie, of eche like quantitie, braze them and give thereof unto the sick person two scruples, in what maner you will, and this shall be the quantitie whensoever he taketh it, and you shall see the success thereof to be marvellous." Or take of the "flowers of Lillies that grow in the plaines, such quantitie as you will, and infuse them to become tender in wine by the space of fower weeks, then castyng awaie the flowers, distill the wine five times, of the which you must drinke a little with sixe grains of Peper, and a little Lavander water, and you shall be safe from the Apoplexia. And washing therewith your forehead, the hinder partes of your head, it comforteth the braine, and causeth a good memorie, and the quantity of a spooneful thereof beyng drunk, healeth the pains of the Collicke." (For the "Collicke" you may also try the "Fat of a Peacocke," or the "Liver of a Porpoise.")

Still attacking epilepsy he recommends you to take the "matrice of a sowe, the whiche being made in powder you shall give to eate or drynke unto the Patient, and as soone as he hath received it, the sicknesse will remove from the brayne

and spread into his fingers, tormenting him very sore ; but whereas the sayde matter shall assemble and come together, make a rupture : and the matter will come out as yellow as Saffron, and he shall be quickly healed." There is another prescription against the same, a fine example of polypharmacy, as it is made up of some sixty ingredients, including "pigeon's dung" and "horse's dung." It can be used in addition "against the debilities of Nature and all other infirmities (4)."

For the falling sickness in children, coral, peony, storax, rosemary, and cobwebs are made into a plaster and put upon the "cloasure."

Another prescription which heals the "Fallyng Sicknesse and Melancholie" is useful in other conditions. "It healeth the griefes of the head, the disease Vertigine and Scotomia, if the body be purged, and then the saied oile be given to be drunke with water of White Lillies, it helpeth the Litergia." These conditions he defines as follows : "Vertigine, Scotomia, diseases of the head when with dimnesse of sight all thinges seeme to go round. Litergia is a sore disease of the braines." To "remedy the commotion of the braine through falling from some high place, or through other occasions and cuttes when through the blowes men lose their speach," it is only necessary to lay a plaster containing red roses, myrtle, aloes, etc., on the head.

There are several methods of dealing with insomnia. For example, if it is desired to cure the "griefes of the head, which through the beating of the artiers, doe not suffer one to take sleepe," a quantity of wormwood is to be procured. This must be "well brayed and boyled in water, and then bound unto his temples upon the griefe." This "presently will mitigate the paine, and cause him to take a pleasant sleepe." When the lack of sleep is due to "frensie," it is necessary to "shave away the heare with a Raiser, and annoint the heade with the froth or fome which swimmeth upon Creame," and the patient "shall sleepe forthwith."

To make "an Apple or ball that provoketh sleepe" he suggests "wilde Poppie, the juice of mandragora, and the lees of wine as much of the one as of the other." Add to this a civet ; make of the whole a round ball and hold it in your hand and "smell to it, and it will make you sleep wonderfully."

Among the modern practitioners of oneiromancy there are some who find a difficulty because their patients do not dream.

Alexis has remedies even for this. In order to cause marvellous dreams you must rub the temples with the blood of a lapwing or black plover; or eat at night a little of the herb solanum or usicaria or some mandragora; or hyoscyamus*: "and you shall see in the night goodly thinges in your dreame." Or, if you prefer a more exciting ephialtic vision, including wild beasts, take the "harte of an ape, and laie it under your head, and you shall see marveilous things, and all kindes of beastes, as Lyons, Beares, Wolfes, Apes, Tigres, and other such like." The longer one kept the heart, the more vivid probably would be the dreams.

A patient afflicted with the palsey is to be treated with a quaint remedy. A powder is made with myrrh, frankincense, cloves, etc., with this a "perfumed Forskin" is prepared and this has to be laid on the paralysed part. Then you shall see a "marveilous effect." He does not state whether this has to be carried out during the period of the Feast of the Circumcision!

Should your memory be indifferent there is a shorter way of improving it than laboriously acquiring some "system." Simply take the "tooth or the lefte legge of a Badger or Brocke, as some call it, and as some other name it a Gray, and binde it about your right arme next unto the flesh. Take also the gall of a Partrick and rubbe your temples with it that maie soake into skine and fleshe, once in a moneth, and it will make you have a good memorie."

If diagnosis is difficult in any case whatsoever Alexis will come to your aid. "For to knowe a secrete or hydden disease of any man and to heal the same, take a young whelp that yet sucketh, and let him lie night and day with the man the space of three days, duryng the whiche tyme the patient shall take mylke in his mouthe, and spitte it into the whelpes mouth. Then take the saide Whelp and cleave him in peeces, and you shall know the sicke part of the man by that of the dogge, which you shall see eyther infected or whole and sound. For certainly the Whelp draweth to himself the secrete and hydden disease whereof he dyeth, and the man shall be healed and you may bury the Dogge." The dog it was that died! Note that you are not commanded to bury it. Perhaps, even in the days of good Queen Bess, they found at times other uses for defunct dogs.

* Or "that confounded cucumber?"

He makes some amends to the canine species by setting forth how one may prevent dogs from becoming mad, or to cure them if they become mad through being bitten by a mad dog or wolf. "If you cutte off the Dogges taile within thirtie or fourtie daies after he is whelpt, he shall never bee madde." If he is bitten and becomes mad he is to be given "Hen's dung," and on the bite there is to be placed roots of wild roses and some garlic or onions ; and if you are near the sea you must throw him in two or three times daily for the space of twenty days, "because the sea water hath a water against the madnesse of Dogges." One wonders what the dog would be doing all the time.

There is reason in the procedure to be adopted in the case of one bitten by a mad dog. "You must use all diligence to get immediately the Liver of the same madde Dogge, and let the pacient eate it hot rosted, and above all things you must enlarge the wound with a rasour, and cut awai all the torn and perished fleshe and cause the blood to issue out abundantly because it bringeth the venime with it. And to drawe out blood also with little Cuppes, well flamed, called Cucurbitulæ, and to give him Garlike, Onions and other like thinges to eate, and to drinke Milke and good sweete wine." First catch your dog! If you wish to "make that no Dogge shall barke at you," perchance even the aforesaid one, you must "take a blacke Dogge, and pluck out one of his eyes, and holde it in your left hande, and by reason of the savour and the smell thereof the Dogges will not barke at you." Nowadays, one would probably be arrested as a public nuisance.

These are the chief remedies of the Reverend Maister Alexis for what may be described as nervous and mental disorders. They form, however, quite a small portion of his therapeutical armoury. He ranges far and wide and has an answer to almost every question. If you wish to be "assured and safe from all Sorcerie and enchantment," he tells you how it may be done ; or how to guard against "Lightnyng and tempest." Nocturnal incontinence must have been common in those spacious days if we may judge by the numerous remedies he suggests thereanent. There are many prescriptions for use against the plague. He gives recipes for hair oils, scents, soap, dentifrices ; for "Marmelade" ; for removing superfluous hairs ; for gilding parchments ; for making "Hennes laye

egges all the Winter." He tells you how a "woman that is wont to have daughters, may beare sonnes also"; or how to make "one have a good stomache that hath a naughtie one." But these are matters which concern us not at present.

It may be interesting to quote his summary of the rules of health: in his own phrase, "the whole summe of the regiment and governyng of a man's selfe."

"1. It is necessarie that you be kept neat and cleane and all things in your house, flying diligently and as much as you can, all evyll ayre.

"2. Avoyde all excesse and superfluitie specially in drinking and eating, and from women.

"3. Also from travayle, and from excesse in sleeping and watching.

"4. Beware of moist meates and corruptible, and of all things that is cause of rawnesse, and other evill humoures.

"5. Live soberly, drinke and eate at ordinary hours, and in good order.

"6. Take your reste and use some neate and good exercise or occupation.

"7. Mayntayne and keepe your naturall or accustomed voydyng.

"8. Be merry."

Many a worse code has been given to mankind!

If a similar quality of commonsense had characterised his treatment generally, he would have been saved from—what appear to be—egregious errors. Yet it may be that some three hundred and odd years hence much that is gravely written nowadays on etiology and treatment will provide a subject for mirth for our more enlightened descendants. It is not impossible.

In the introduction to the last book of his *Secretes* the author, now too old for further writing, and having already set forth his store of learning, warns the public against those fraudulent ones who may produce books bearing his name: malicious persons with an intent to "deceive you withall." He enjoins his readers also that "when occasion happeneth to use my secretes," they are to take "the counsell of some expert Phisition" in order to make sure that they use them properly. But he feels that a further warning is necessary. "Accustome yourselves therefore to take counsell of such

Phisitions as are honest, and that practise the Arte without Fraude: and there are seene of that profession many which being given unto prattle, and tell fables to deceive the people, doe vituperate the experiences, with saying that they are wicked and such like." Diogenes, setting out with his lantern in search of prattlers, might not have far to go even in these days: he might even find a few deceivers—or self-deceivers—on the way!

Peace be with the Reverend Maister Alexis. If he has not furnished us with much instruction, he has at least provided us with some diversion. And withal his final rule for the "regiment and governyng of a man's selfe" is not unworthy of our attention in these weary days; we may at least endeavour in his company to "Be merry!"

NOTE.—It has been a matter of some difficulty to ascertain who the learned Alexis really was. In the notes to the edition from which these extracts have been taken he is spoken of as "Alessio vel Alexius—Piemontese pseud. G. Ruscelli vel Rossellus." It was taken for granted that he was a medical man; but further investigation did not confirm this. In the *Bibliotheca Britannica* (by Robert Watt, M.D., London, 1824) he is mentioned as follows: "Alexis or Alexius, a Piedmontese, the reputed author of the 'Secretes.' Haller says the real name of the author was Hieronymo Rosello. The 'Secretes' appeared in Venice in 1557, and have been translated and published in every European language, and an abridgement of them was long a popular book at the foreign fairs." In the *Nouvelle Biographie Générale* (Paris, 1862) he appears under the name Ruscelli. The writer speaks of him as "a learned Italian, born at Viterbo, died in 1566 at Venice. His parents were poor and in humble circumstances; but by dint of work and perseverance he raised himself to a distinguished position in contemporary literature." His learning—which comprised history, poetry, ancient and modern languages—brought him into friendly relationship with such men as Tasso. Of his life little is known. He lived at Rome during the pontificate of Paul III. He then went to Venice, where he worked as proof-reader to the printer Valgrisi. He died in Venice between the ages of forty and fifty. He edited numerous works; but, so his biographer avers, he was not

content with editing. "On a reproché à Ruscelli," he says, "d'avoir introduit dans quelques-uns de ces ouvrages des changements qui en ont plus d'une fois dénaturé le sens." Evidently he did not "avoide all excesse and superfluitie" when editing!

I have not been able to find any reference to Alexis or his *Secretes* in Daremberg, Bouchut, Puschmann, Sprengel, Le Clerc; nor even in the *Encyclopædia Britannica* is the learned Ruscelli referred to. Such is fame! In Timbs' *Doctors and Patients* there is a paragraph on "Olden Secrets in Physic and Surgery" which deals with a "venerable volume," in the frontispiece whereof there is a portrait of, among others, the worthy Alexis. I have not yet been able to see this book, which is, according to the diligent Timbs, "of considerable size and pretension."

Thus, so far as can be gathered, Alexis had no training in the art of physic, but was an industrious collector of recipes as well as an erudite scholar.

I am obliged to Mr. H. E. Powell, of the Royal Society of Medicine, for his kind assistance in helping to elucidate the matters dealt with in this note. I may add that there are three editions of the "*Secretes*" in the library of the Royal Society of Medicine.

(¹) J. de La Bruyère, "Caractères," *Discours sur Théophraste*.—(²) Hippocrates, *De Morbo Sacro* (Sydenham Society's edition).—(³) "Apoplexia" he defines as "a sickness engendered of grosse humors, filling the receptories or vessels of the braine, and therefore depriveth of feeling, speech and moving."—(⁴) In the *Syriac Book of Medicine* which dates back to the early period of the Christian Era, there are some curiously similar prescriptions against the falling sickness. Certain of these contained more than thirty ingredients, and among these are found pepper, myrrh, ginger, cinnamon, musk. Instead of the brain of a crow the Syriac physician suggests the brain of a camel; and he is not outdone by the sage Alexis in what may be described as excrementitious therapeutics. (*The Syriac Book of Medicine*, edited and translated by E. A. Wallis Budge, vol. ii, p. 59. London, 1913.)

The Mechanism of Hysterical Phenomena. Sketch of a Psycho-Physiological Theory of Hysteria. By ALBERT SALMON (Florence), Lecturer in Neurology in the University of Rome. (By kind permission of the Editors of *Nouvelle Iconographie de la Salpêtrière*. Trans. by T. DRAPES.)

THE problem of hysteria, although for some years past it has engaged the special attention of the best neurologists and

psychologists, is yet very far from being solved. The chief object which authors have had in view at recent congresses has been to obtain a satisfactory definition of this affection. A definition, however, as Claparède justly observes, being only a citation of the characters which constitute the nature of a thing, should be the crown and not the foundation of the study of any malady. Hysteria cannot, then, be defined without first establishing the nature of this affection, without studying the mechanism of its morbid phenomena. Now, an essentially pathogenic study of this disorder has not yet been made. It has been supposed to be the consequence of a narrowing of the field of consciousness (Janet), the suppression in consciousness of painful impressions of sexual origin (Freud), of suggestibility (Babinski), of an exaggeration of the plastic power of the imagination (Hartemberg), of torpor of the organic cerebral mechanisms (Sollier), of a tendency to reversion, to atavism (Claparède), of disorder of the cortical or sub-cortical reflexes (Raymond), of an exaggerated emotional reflex (Bernheim), of perversion of the highest cerebral functions (Bastian); but it has not been explained by what mechanism all these conditions are produced, and provoke the morbid phenomena. It is just here that the chief difficulty of all these theories lies; it is the point by which we may judge of their respective value. Even if we assume, for instance, that hysteria is due to a limitation of the field of consciousness, what, we may ask, is the primary cause which determines this modification of the personality? By what mechanism does a suggested idea or a painful representation translate itself, or become converted, into somatic phenomena, or into an exaggerated emotional reflex? It does not suffice to tell us that this affection is characterised by a flexible suggestibility or by an exaggeration of a plastic imagination; we require also an explanation as to what determines the plastic properties in the case of these patients. What is the cause which induces the torpor of the organic functions of the brain as in Sollier's theory, the disorder of cortical or sub-cortical reflexes as in that of Raymond?

I believe that the answer to all these questions can only be found in the study of hysterical phenomena themselves, such as are met with in clinical practice, and above all in the consideration of their intimate mechanism. It is precisely the study of this mechanism which constitutes the principal object

of my thesis. I shall afterwards see if there is not some morbid condition capable of explaining all these hysterical phenomena, including those which some authors have eliminated from their descriptions of this complaint. Finally, I shall endeavour to outline a theory which, far from ignoring the importance of the principal theories which have been propounded in explanation of this affection, will gain advantage from the best arguments, and above all from the facts which have been advanced in support of their conclusions. I shall be happy if this attempt, the difficulty of which, moreover, I fully recognise, will aid in dissipating the obscurity which envelops the pathogeny of this interesting malady.

The most important data resulting from the study of hysteria, and from the examination of the best theories regarding it, are, in my opinion, the following :—

(1) *The importance of the emotions in determining the affection.*
—Hysterics in general belong to very emotional, very impressionable families and races. It is very rarely that all the phenomena which they exhibit have not as their origin an affective cause ; we occasionally see hysterical troubles, even those most rebellious to psychotherapy, abruptly disappear under the influence of sudden emotion. We remark, besides, as Dejerine has well shown, that a large number of these phenomena, such as the paraplegias, convulsive crises, aphonias, vomiting, vaso-motor troubles, etc., are often only the somatic translation of emotions experienced by the subjects ; it is only by their permanence that they are distinguished from the somatic phenomena which are ordinarily observed after the most commonplace emotions. Suggestibility implies equally an affective factor ; frigid ideas neither excite nor cure a single hysterical symptom.

The fact that hysterical troubles are very rare after very intense and prolonged emotions, initiated by grave cataclysms (earthquakes, conflagrations, etc.), does not, in my opinion, controvert the importance of emotion in hysteria ; it only makes us assume that emotions are not the direct cause of the morbid phenomena ; between these phenomena and the emotion it is necessary to invoke an intermediate element, which loses all its influence when the emotion is too intense. There are other arguments which tell in favour of this hypothesis—

namely, the period of latency which very often intervenes between the emotion and the development of the hysterical symptoms, and the fact that the phenomena produced by an emotion can be reproduced independently of it, for example by habit, by compression of a hysterogenic zone, etc.

(2) *The impulsive and plastic power of affective ideas*, by which these translate themselves into corresponding acts, and sometimes into somatic phenomena, which are observed with great difficulty under normal conditions. Thus, the idea of a paralysis, a contracture, an anæsthesia, involves the realisation of these phenomena, and sometimes of vaso-motor and secretory symptoms, which are themselves only the exaggerated somatic translation of ideas conceived by the subject. Even in this case we observe that the hysterical phenomena determined by an affective idea may recur independently of it, for instance on the occasion of an emotion, by compression of an hysterogenic point, by habit, etc.

(3) *The special suggestibility of the subjects*, which is to be distinguished from the suggestibility we observe in other affections by the fact that the suggested or auto-suggested ideas are translated into somatic phenomena; this plastic suggestibility (Hartemberg) is only the expression of the plastic and impulsive power of affective ideas peculiar to this affection.

(4) *The purely automatic mechanism by which hysterical acts manifest themselves; the modifications of personality; the indifference, the lack of interest, the adaptability which the subjects exhibit with regard to their symptoms*, as if these were of no concern to their personality.

Hysterical acts present a strong analogy to voluntary acts (Brissaud, Paulhan), and more particularly to acts which have become automatic. Brissaud said that the hysteric produces nothing that he could not reproduce at will. Paulhan maintains that hysterical acts are effected in accordance with the general laws which govern all voluntary acts. Now, granted that the pathogeny of every morbid phenomenon finds its explanation only in the study of the corresponding physiological phenomenon of which it is only a modality, we ought, in order to elucidate the mechanism of hysterical acts, to revert to the study of voluntary and automatic acts. In connection with this subject we should bear in mind the very important studies

of James and of Fouillée, demonstrating that the feeling of innervation and impulsion to perform any voluntary act are essentially determined by the representation of the movement ; that is to say, by its kinæsthetic image, which is nothing but the residue of the muscular, articular, and tactile sensations which were produced when the movement was previously accomplished. It is only by this kinæsthetic revival that the very vivid representation of an act is translated into the act itself ; thus, the billiard player who follows with much interest the direction of a ball, very often with one of his limbs executes involuntary movements in the same direction as the ball ; and, similarly, a person who thinks with emotion of a word which he has heard, or which he wishes to pronounce, often utters it unknown to himself. All these facts would not, assuredly, find an explanation were it not admitted that it is precisely the representation of the act, or its kinæsthetic image, that determines the automatic impulse which brings about the act itself. All automatic acts, as Morselli very justly remarks, imply a kinæsthetic precedent, an organic memory which replaces the voluntary and conscious memory. It is the kinæsthetic and muscular innervations—Luciani writes to the same effect—which by their prolonged exercise govern all our automatic acts.

The importance of kinæsthetic images in automatic acts is in quite a special manner confirmed by a curious and interesting phenomenon which I described at the last Congress of Neurology in Florence. I have proved that in the case of many healthy subjects, after a prolonged muscular contraction, they are capable of executing the same movement by a purely automatic mechanism. We can elicit this phenomenon in the following manner. The subject is asked to make a very vigorous and prolonged movement of abduction with his arm, while at the same time a strong resistance is opposed to it. When he is slightly fatigued he is requested to relax his muscles, and at once to recommence the preceding movement, but very slightly, and only the initial stage of it. Then we observe that the movement, almost before it is conceived, is completely effected in an automatic manner ; that is to say that the subject, independently of his will, raises his arm. I have demonstrated the same fact, although less markedly, after flexion of the forearm and of the thigh, or after extension

of the head. These practical experiments on a large number of subjects, without previously apprising them of the object of my observations in order to avoid any possibility of suggestion, have given me in almost every instance a positive result. Many subjects, and perhaps the more impressionable and emotional, have even been able to execute the automatic movements in question without having had any previous conception of them at all. In only a small number of subjects have I found this phenomenon absent: these have, however, remarked that voluntary movements executed immediately after muscular contraction in the same direction as this movement are effected with extreme facility. They feel a strong impulse to perform them, while almost experiencing the feeling that the limb was flying. Now, if we consider that the sensation of innervation and impulsion to perform any voluntary and automatic act are conditioned by the revival of kinæsthetic images, it is not an illogical hypothesis that the automatic impulse which we have demonstrated in our subjects is due to the residue of muscular, articular, and tendinous sensations which are produced after the muscular contraction; in other words, to their kinæsthetic images. Just as after hearing a sound of great intensity, or after seeing a very vivid light, the hallucinatory image of the auditory or luminous impression persists for several seconds, so, after muscular efforts, there remains a kinæsthetic image endowed with a strong motor tendency, whence arises the automatic impulse to the act. I have been able to obtain very convincing confirmation of this view in the case of a neurasthenic who exhibited a very lively kinæsthetic impressionability. This subject, in whose case the automatic movements above described were very pronounced, could accomplish the same involuntary movements by simply thinking of the act he wished to perform; that is to say, that the mere representation of the movement was sufficient to cause the automatic impulse to the act, which proved clearly that this impulse depended on the kinæsthetic image which is habitually formed as a sequence of the very vivid representation of every movement. There can, therefore, be no doubt as to the importance of kinæsthetic images in the mechanism of automatic acts.

All these considerations which are derived from the study

of voluntary and automatic acts explain, in my opinion, the mechanism of hysterical acts. In fact, if these phenomena are, in the last resort, only automatic acts, if they are the somatic translation of the psychical representations of the acts which the patient has formed in his mind, and if these representations are identical with the kinæsthetic images of the corresponding acts, it would seem perfectly logical, in the study of hysteria, to attach very considerable importance to these images, in order to understand the impulse which hysterical subjects have to perform their morbid actions, and to explain the plastic power of their representations.

The very active impulsive tendency inherent in kinæsthetic images is due in particular to their affective coefficient. It is the representations of markedly affective character which especially revive our kinæsthetic images and translate themselves forthwith into acts. It may, then, be affirmed that every hysterical act implies a fixed kinæsthetic image, endowed with a very lively affective and motor tendency, whence arises the automatic impulse to the act. An hysterical paralysis, for instance, is, in my opinion, only the somatic translation of the strong kinæsthetic impression experienced by the patient from the idea of the paralysis; a limb contracture, in the same way, implies the fixed kinæsthetic image of the movement which the subject has accomplished; catalepsy could not be similarly explained if we did not admit the persistence of motor images (James), etc. The existence of a fixed kinæsthetic image must be invoked not only in the case of motor, but also in that of sensory hysterical phenomena, for all sensory impressions are accompanied by a motor reaction, and by a kinæsthetic image, which can be revived merely by the recollection of the impression received (Patrizi).

Hysteria, then, finds its most obvious explanation in kinæsthesia, that is to say, in the synthesis of the internal cerebral sensations which derive their origin from sensory, motor, and visceral impressions. The fundamental condition of the affection is, in my opinion, a vivid impressionability of the kinæsthesia, of this important function reinforcing the mental and affective life, whence the formation of very affective fixed kinæsthetic images which, attracting all the dynamic nervous energy, engender a disequilibrium of the kinæsthesia itself. In this way we shall succeed in explaining the principal facts observed

in the study of this affection. For example, we can understand that the presence of a fixed kinæsthetic image behaves like a nucleus of crystallisation with regard to nervous energy, and exercises an inhibitory action on the activity of other such images, including those which preside over antagonistic movements. This would furnish a complete explanation of the powerlessness of the subject to make movements which would oppose the realisation and the permanence of his morbid actions. We can, moreover, assume that the patient loses also the desire to make these movements, for the desire to perform such and such an act depends on the affective and motor potential which is bound up with the kinæsthetic image of the act itself.

The aloofness, the indifference, the adaptability which the hysteric shows with respect to his symptoms may be explained by studying the action of the affective tendencies which are linked on to the kinæsthetic images. We must, in the first place, make with Paulhan a distinction between affective tendencies and emotions. An emotion is merely an affective tendency which by its intensity, or by its too rapid realisation, provokes an overflow of nervous energy, and its irradiation through all the cerebral cortex to the bulb. The emotion, in fact, arises every time our affective tendencies are arrested (Paulhan). Every affective tendency, however, does not constitute an emotion; it may become systematised, fixed, without exciting any emotion. This latter takes origin from the antagonism between our affective ideas and the ego, and, by reason of its wounding our personality, it entails very grave psychical troubles. Affective tendencies, on the contrary, in consequence of their systematisation, do not modify our personality. Now, the hysteric, possessing a very vulnerable personality, in consequence of his habitually emotional temperament, avoids emotions of every kind, and, to defend himself from these, is chiefly interested in having his affective tendencies systematised and fixed. It follows from this that when these subjects, owing to their kinæsthetic hypersensibility, have a strong impulse to do such and such an act, they have no desire to check the affective tendency which is bound up with their kinæsthetic images, and this to escape the emotion which would be consequent on its arrest.

This view would explain not only the adaptability of the

subjects towards their symptoms, but, further, even the persistence of these phenomena, which, without doubt, would find their strongest opposition in the resistance which the subjects could offer to them. Confirmation of this idea may be found in a fact demonstrated in many cases of hysteria, namely, that when patients have attempted to resist their suggested or auto-suggested impulses, they have been attacked with the most violent emotional crises (convulsive paroxysms, etc.), or with psychical troubles (delirium, etc.), testifying to the change in their personality. From this point of view an hysterical symptom may be regarded as a reaction of adaptation, a defensive reaction (Claparède), in the face of the emotions and psychic troubles which result from it. For this reason we are not surprised that hysterical phenomena very often disappear with the advent of insanity, or that emotions, when very vivid or excessively prolonged, more readily induce mental trouble, representing a phenomenon of disadaptation of the intellectual sphere, rather than hysterical acts, that is to say, phenomena of adaptation.

Modifications of personality, of consciousness, also find in my theory their most correct explanation, if we recollect the very close relations which exist between kinæsthesia and consciousness. There is no consciousness, writes Bianchi, without kinæsthetic sensation; we are not conscious of any sensation whatever unless it is amalgamated with the totality of internal sensations which form the basis of our personality. It is, then, quite logical to assume that a fixed kinæsthetic image, endowed with a very affective coefficient, attracting all the nervous energy and internal attention of the subject, induces the loss of the kinæsthetic sensibility of a considerable number of sensations, and that these, although perceived by the sensory centres, do not reach consciousness, the personality of the subject. Thus, the hysteric, the subject of an anæsthesia or an amaurosis, feels affectively with the anæsthetic skin, or sees with the amaurotic eye, but these sensations remain altogether in the region of the subconscious. This would explain the phenomenon so well described by Janet under the term "*contraction of the field of consciousness*." This phenomenon is not, however, according to my theory, the primary cause of hysteria, as Janet supposes, but is the consequence of

a kinæsthetic disequilibrium, the result of an exaggerated reactive condition of certain kinæsthetic images.

My theory must also be distinguished from the theory of Sollier, the only author who assigns great importance to kinæsthesia in the study of hysteria, by the fact that this affection, according to Sollier, is the result of a torpor, a somnolent condition of the organic functions of the brain, while according to my view it is the consequence of a diametrically opposite cause, namely, of hyperæsthesia of the kinæsthetic mechanism, and of the consequent disorder of this important function. According to Sollier's theory all the dynamic phenomena, all the vaso-motor and secretory phenomena which characterise our affection, remain quite unintelligible, whereas, as I hope to show later on, the facts find their fullest explanation in my theory, according to which the origin of hysteria consists in a hyperactivity of the kinæsthetic centres or of the organic regions of the brain. It is by a *hyperæsthesia of kinæsthesia*, and not by its torpidity, that we are enabled to comprehend the facts of double personality, or the dissociation of personality, in the case where a synthesis of very affective sensations, images, and recollections form a special centre of association, and a new personality. It cannot be doubted that all cases of dissociation of personality are always in the closest connection with the most profound modifications of kinæsthesia (Sollier).

My theory, I believe, perfectly explains one of the most interesting peculiarities of this affection, namely, the plasticity of the nervous centres, by which affective ideas are translated into abnormal somatic phenomena, for instance into vaso-motor, secretory, and sometimes trophic disturbances. Cases of hysterical paralysis and anæsthesia are often quoted which are accompanied by cutaneous and muscular angiospasm, such that the deepest punctures of the skin and the muscles cause no bleeding. In a case of hysteria described by Dejerine the mere idea of cold sufficed to determine a strong constriction of the cutaneous vessels. Gerini has similarly observed a subject in whose case the idea of an electric stimulus induced a cutaneous and muscular angiospasm so intense that the subsequent application of a faradic stimulus failed to cause the slightest muscular contraction. I myself have called attention to the coincidence in cases of traumatic hysteria between the myas-

thenic reaction and the presence of vaso-motor troubles, a coincidence which constitutes a very valuable argument in support of the hypothesis that I have advanced in the study of this reaction, namely, that in many patients, and particularly in the case of hysterics, it is in relation with a vaso-motor hyperexcitability of the subjects.

Now, this exaggerated vaso-motor reaction which is observed so frequently in hysteria, this plasticity, this constitutional docility, which constitutes perhaps the most salient fact of that complaint, cannot, in my opinion, be explained unless by invoking a special excitability of the vaso-motor and organic brain centres, which is in perfect agreement with the kinæsthetic theory which I have proposed. It is, in fact, admitted that the kinæsthetic centres have not only the power of receiving internal sensations, but also of transmitting the excitation to the vaso-motor, secretory, and trophic nerves (Morselli). Many authors even maintain that these centres have their seat in the somæsthetic zone of Flechsig, which is the precise situation of the vaso-motor, secretory, etc., centres; and it has been remarked, in support of this idea, that every kinæsthetic impression is linked to a more or less active vaso-motor reaction. We can understand, after all these considerations, how in hysteria kinæsthetic hypersensibility is very often accompanied by a special hyper-activity of the vaso-motor and secretory centres or of the organic cerebral centres, which completely explains the special frequency of vaso-motor and secretory troubles in this affection.

The kinæsthetic theory which I have described equally elucidates the very complex etiology of hysteria. The important *rôle* of the emotions in its development finds its explanation in the very close connection between kinæsthesia and the emotions (Sollier). In fact, if we consider that kinæsthesia constitutes the domain whence all the emotions spring, that on the one hand it gives vivacity to all our ideas, and on the other originates the somatic phenomena of the emotions themselves (Bianchi), we may suppose that kinæsthetic sensibility becomes more active as emotivity and affective tendencies become more intense. We are familiar with the cases of Pronier, Sollier, and Allonnes, where a remarkable diminution of kinæsthetic sensibility was associated with

an absolute loss of emotivity. The emotions, in their turn, have an enormous influence on kinæsthesia, just as they largely influence all sensations; there is no emotion which does not excite disorder or augmentation of kinæsthetic sensibility. We can, then, readily conceive that hypersensibility of kinæsthesia, and, consequently, the development of hysterical phenomena, are more easily determined in proportion as the emotivity of the subjects is greater. The kinæsthetic image would thus constitute the intermediate element, which we have previously assumed, between the emotion and the hysterical phenomenon, and would explain all the facts which have been wrongly adduced against the importance of emotion in hysteria. In fact, a very intense emotion may determine a depression of kinæsthetic sensibility without thereby causing any hysterical symptoms. We shall not then be surprised at their absence, or their rarity, in grave cataclysms, great earthquakes for instance, after which the unfortunates generally exhibit the most complete loss of emotivity and affectivity (Gabbi, Sterling). We may suppose, on the other hand, that kinæsthetic hyperæsthesia, that is to say the fundamental cause of hysteria, would be only with great difficulty determined by a single emotion, even the most intense, and that it demands for its production a series of emotions, or rather a constitutional emotionalism which without doubt engenders the most favourable disposition for the outbreak of this affection. By assuming an intermediate element between the emotion and the hysterical phenomena, we can similarly explain how an hysterical phenomenon created by an emotion may repeat itself independently of this, for instance through habit, by compression of a hysterogenic zone, etc. We can also explain the fact, well illustrated by Dejerine and Gauckler, that many of these phenomena are the somatic translation of an emotion, if we reflect that it is precisely kinæsthesia which supplies the somatic components of every emotion. We may then assume that a paraplegia, an aphonia, vomiting, etc., which are commonly observed after a vivid emotion, and which ordinarily disappear a few minutes after the shock thereby produced, remain fixed in the case of hysterics in consequence of their kinæsthetic impressionability, independently of the idea or of the suggestion of these phenomena. Their mechanism would thus present a strong analogy with that of many automatic acts, such as

yawning, laughing, weeping, etc., which equally imply kinæsthetic antecedents, and are effected without the subject having the idea of, or the will to execute them.

The special suggestibility of hysterical patients, which is one of the most characteristic features of this affection (Bernheim, Babinski), finds too its explanation in my theory, if we consider that it is characterised by the emotionalism and by the impulsive and plastic power of affective ideas, which imply, as we have already shown, a lively kinæsthetic impressionability. It is, in fact, by this cœnæsthetic impressionability that the suggested ideas promptly translate themselves into corresponding kinæsthetic images, which possess a strong affective and motor tendency, and consequently into action. It is owing to this kinæsthetic hypersensibility that the thought of an hysteric is always an image so vivid that at times it assumes an hallucinatory intensity, so that the subject imagines he sees or hears everything that is suggested to him. It is just because of his kinæsthetic impressionability that the hysteric cannot think of any action whatever without feeling a strong impulse to perform it, even without comprehending the reason of his impulse. We have a very appreciable confirmation of the relations existing between kinæsthetic sensibility and suggestibility in the fact that when the first is very depressed we find a loss of suggestibility such as is observed in melancholics, as in the case of Allonnes and others. Suggestion has sometimes succeeded in inducing abnormal somatic disturbances, vaso-motor and secretory troubles, which are only the somatic or kinæsthetic translation of the affective ideas suggested. These are observed particularly in the hypnotic state, where precisely a special hyperæsthesia of the kinæsthetic centres has been shown to exist.

The considerations we have advanced with respect to hysterical suggestibility equally explain the mechanism of imitation, a very striking phenomenon in hysteria, and which is merely a suggestive stimulus implying, as every suggestion does, a blind impulse to action the moment a subject has received certain perceptions. In fact, the imitation is the more effectual in proportion as the kinæsthetic images are more vivid, as is observed in conditions of hypnosis, where the patients imitate irresistibly all the movements that they see. The hysteric is

very often a mythomaniac, who imitates with the complicity of his organism. Now, this plastic mythomania, or, to use the expression of Dupré and Logre, this mythoplasty, which reaches its highest degree in catalepsy, would remain quite inexplicable if we did not assume an active kinæsthetic impressionability capable of explaining the somatic translation of the actions observed.

The kinæsthetic theory, finally, illustrates the importance of organic changes in the development and fixation of hysterical phenomena. We are familiar with all the relations which exist between hysteria and physiological and pathological modifications in the condition of the genital organs; for instance, the influence which menstruation, pregnancy, parturition, genital maladies in general, have in the determination of morbid phenomena. Hysteria constitutes one of the most frequent complications of exophthalmic goitre, as if thyroid hypersecretion created a disposition to this affection by means of emotivity. Many hysterical gastralgias have their origin in genuine dyspepsia. Cases are not rare in which gastric or pulmonary changes, even of a very trivial nature, induce in these subjects very serious hæmoptysis or hæmatemesis, with features peculiar to hysterical attacks. Hysterical crises have been described which had their origin in hepatic or renal colic, and which subsequently recurred from a simple suggestion (Bernheim). A slight laryngitis is sometimes the cause of rebellious hysterical aphonia. In a case described by Janet the hysterogenic zones, where compression provoked hysterical crises, were represented by the points of Valleix of a previously cured sciatica. In traumatic hysteria there has often been observed a relation between the most trivial anatomical lesions produced by trauma and the hysterical phenomena, which disappear rapidly on the cure of the former. The development of traumatic hysteria is, without doubt, favoured in many cases by physiological distress, fatigue, neurasthenia, alcoholic intoxication, abuse of tobacco, plumbism, etc. Hysteria, even the infantile variety, selects as its favourite subjects such as are of feeble constitution, affected with chronic intestinal intoxications (Sainte-Philippe), or debilitating infections such as tuberculosis and syphilis, the children exhibiting delay in their physical and mental development, the progeny of alcoholics

and syphilitics. Not rarely is hysteria associated with some organic affection of the cerebral and medullary centres; it is frequently combined with disseminated sclerosis, dementia præcox, and sometimes with cerebral and cerebellar tumours, and tabes (particularly in the female sex). Phenomena are observed in hysteria which seem very closely connected with vaso-motor disturbance. Cases have been described of hemiplegia, of contracture, of hysterical stammering, which have not yielded to psychotherapy, and which have disappeared during the inhalation of a few drops of nitrite of amyl; also cases of right hemiplegia with motor or sensory aphasia, which altogether suggested a diagnosis of organic change in the cerebral centres, and which have been cured by suggestion. Hysterical blindness is very often preceded by severe headache and dizziness, as if it originated in some transitory vascular trouble in the brain. The relation between vaso-motor troubles and hysterical symptoms is such an intimate one that Savill and other authors maintain that the origin of these symptoms should be looked for in vaso-motor conditions of the nervous system of emotional origin. What is certain is that in many cases even the most distinguished writers seem exceedingly puzzled between a diagnosis of hysteria and that of some vaso-motor affection.

Now, the relations which I have adduced between organic changes and hysteria could not certainly find their explanation in a purely psychological theory of this affection, while they are perfectly explained by my kinæsthetic theory. Kinæsthesia precisely represents a psycho-organic co-ordination, which is responsive to the influence both of psychical and organic stimuli. It registers, on the one hand, the slightest changes in any of our tissues, and, on the other, it gives origin to our representations; we have the clearest demonstration of this in dreams—the analogy of which with hysterical phenomena is well known—where images, the most fantastic ideas, have very often their origin in feeble kinæsthetic sensations. It is not, then, a hazardous hypothesis that hysterical phenomena, like dreams, may derive their origin from kinæsthetic traces left by organic changes, even of the lightest character, such as a small peripheral lesion, a vaso-motor trouble of emotional origin, etc.

To sum up, I am convinced that hysteria finds its clearest explanation in the study of kinæsthesia. Just as this function elucidates the mechanism of all our voluntary and automatic actions, in the same way it explains the mechanism of hysterical actions, which are effected according to the laws which regulate all voluntary and automatic acts. The fundamental condition of this affection is, in my opinion, a hyperæsthesia or an active impressionability of the kinæsthetic centres, whence the formation of fixed kinæsthetic images, endowed with a strong affective and motor tendency, which, attracting to themselves all the nervous dynamic energy, bring about a disequilibrium of kinæsthesia, and consequently modifications of the personality peculiar to hysterics. The relations existing between kinæsthesia and the emotions (Sollier) explain the importance of affective causes, and of emotionalism in the determination of this affection. The kinæsthetic images, according to my theory, would constitute the intermediate element between the emotion and the hysterical act, which would explain on the one hand the absence or rarity of this malady after very intense emotions which ordinarily cause kinæsthetic depression, and on the other hand the period of latency which very often intervenes between the emotion and the hysterical phenomenon. Finally it would also explain the capability which hysterical troubles possess, created by emotions and affective ideas, of repeating themselves independently of these latter. Similarly, by this theory can be shown the relations which we have already cited as existing between organic lesions and hysteria, relations which purely psychological theories of this affection are powerless to explain. The kinæsthetic theory which I have described furnishes us, in fine, with an explanation of the impulsive and plastic power of affective ideas, the power by which these promptly translate themselves into corresponding acts, and sometimes into abnormal somatic phenomena, such as vaso-motor, secretory, etc., troubles, which are themselves merely the expression of an exaggerated reactivity on the part of the kinæsthetic centres. It is, in fact, by a kinæsthetic hypersensibility that we can explain the *sensory impressionability* of Dubois, the plastic properties of the images, consequently the mechanism of the *plastic suggestibility*, and the *mythoplasty* characterising this affection of Hartemberg and Dupré. My theory greatly

elucidates the *conversion* of Freud, by which the *affective element* determines the somatic symptoms—which constitutes the most mysterious point in the theory of the German neurologist.

In a word, it seems to me that my theory not only is not in contradiction to the principal theories which have been advanced in the study of this malady, but that it clears up the most obscure points in these theories, thus rendering them easier of acceptance. It is for this reason that I venture to hope that it will be welcomed by all neurologists, and particularly by those authors whose names are associated with this interesting affection.

Relative Degrees of Dulness and Backwardness in School-Children and their Causation. By H. R. BURPITT, M.D.,
School Medical Officer, Newport, Mon.

THE following investigation deals with 400 children (200 boys and 200 girls) between the ages of 7 and 14, considered by the teachers, and after examination by myself, to be dull and backward, but not to fall within the meaning of the definition of feeble-minded as given in the Mental Deficiency Act of 1913—*i.e.*, persons in whose case there exists from birth, or an early age, mental defectiveness not amounting to imbecility, yet so pronounced that they require care, supervision, and control for their own protection, or for the protection of others; or in the case of children, that they by reason of such defectiveness appear to be permanently incapable of receiving proper benefit from the instruction in ordinary schools.

The defects, and other abnormal conditions, ascertained in the case of these children are given in the following table :

TABLE I.

	<i>per cent.</i>
Family history of mental defect (including insanity)	3·5
Family history of dulness	11
Family history of epilepsy	1·25
Family history of tuberculosis	9
Unfavourable home surroundings	25

	<i>per cent.</i>
Irregular attendance	52
Inherent dulness (not amounting to feeble-mindedness)	34.25*
More marked inherent dulness (? mental defect)	1.75*

Physical Defects.

Adenoids and tonsillar disease	18.75
Deafness (apart from above)	4.75
Defective vision ($\frac{6}{18}$ or worse in one or both eyes)	14.5
Nutrition below normal	15.5
Defective speech	4

A family history of amentia and insanity was present in 3.5 *per cent.* of cases. Owing to the sensitiveness of people on this matter, it is probably higher than this.

The ratio of 11 *per cent.* for dulness in the family, based largely on the information of teachers who had known older brothers and sisters, is probably also underrated.

A family history of tuberculosis was obtained in 9 *per cent.* of cases. This is nearly twice as great as that for the children for the area taken as a whole.

Unfavourable home conditions are much more frequent than in the case of ordinary children.

Irregular attendance is bound up with these, and was the commonest condition present.

Inherent dulness of all degrees occurred in about one-third of the cases, and, next to irregular attendance, was the most frequent condition present.

Of the physical defects, adenoids, tonsillar disease, and deafness are more prevalent than amongst the children of the area as a whole.

The percentage of defective vision is also greater than that observed in an equal admixture of sexes and ages of the general population, and includes many of the most marked cases of errors of refraction, corneal opacities, etc. There is no doubt that uncorrected defective vision is a common cause of backwardness, which is constantly being proved, according to the statements of teachers, by the more rapid progress made by these children after wearing spectacles.

Malnutrition is about three times as great as in the case of

* See footnote on p. 399.

ordinary children, a statement which is corroborated by the improvement in lessons of those put on the free dinner list.

Speech defects are also about three times as frequent as ordinarily met with.

The absolute degree of retardation of each child was investigated, and classified according to the number of standards he or she was behind the normal. For this purpose it was assumed that a normal child aged eight should reach Standard 1—this errs somewhat on the side of leniency to the child—and, then progress one standard for each subsequent year thus :

8 years = Standard 1.	12 years = Standard 5.
9 years = Standard 2.	13 years = Standard 6.
10 years = Standard 3.	14 years = Standard 7.
11 years = Standard 4.	

In the examination of the dull and backward class—in fact of all the retarded—it is also necessary to ascertain the relative extent of the retardation. A child may be one standard or more behind, but a statement to this effect does not alone convey the true state of things. The age must also be given. A year's retardation—real and not apparent, and only ascertained after elimination of conditions such as shyness, which are more common in the younger children—early in school life is more serious than towards the end of the career. The younger child would probably be mentally defective ; the older one only a little dull and backward.

It is better then to express the backwardness by some form of equation indicative of the degree of backwardness in ratio to the normal, rather than to use the loose term “so many years retarded.” A useful system of equations is easily found : *sic.*, a 9 year old child should be in Standard 2, and if he has only reached Standard 1 has lost 1 year. The school life is practically always age of child minus 5 ; a few children who are delicate, or whose parents are of nomadic habits, may start school later than 5, but their number is negligible, and, where school is begun earlier, there is no serious teaching.

A backward child of 9 should be expressed fractionally as $\frac{1}{9-5}$, *i.e.* = $\frac{1}{4}$, or in other words he has fallen behind 1 year in 4.

Again, a child of 13 in Standard 4 is 2 years behind, and is

represented *qua* backwardness by the fraction $\frac{2}{8}$. 'He has lost 2 years in a school life of 8, and is proportionately equal to the child of 9 who is in Standard 1.

The backwardness of school-children may then be expressed arithmetically in terms of the number of years behind, compared with the number of years already spent in school. As the normal school life is composed of 9 periods of 1 year each, the lowest unit of backwardness is $\frac{1}{9}$, and the range from $\frac{1}{9}$ to $\frac{8}{9}$, the higher fractions being only applicable to imbeciles and idiots who had been retained at school, a practice which, of course, is not existent in ordinary schools.

The different degrees of backwardness which children under this definition exhibit are shown in the following table :

TABLE II

	Age 7.	Age 8.	Age 9.	Age 10.	Age 11.	Age 12.	Age 13.	Age 14.
Retarded 1 year .	$\frac{1}{2}$	$\frac{1}{3}$	$\frac{1}{4}$	$\frac{1}{5}$	$\frac{1}{6}$	$\frac{1}{7}$	$\frac{1}{8}$	$\frac{1}{9}$
Retarded 2 years .	$\frac{2}{2}$	$\frac{2}{3}$	$\frac{2}{4}$	$\frac{2}{5}$	$\frac{2}{6}$	$\frac{2}{7}$	$\frac{2}{8}$	$\frac{2}{9}$
Retarded 3 years .	—	$\frac{3}{3}$	$\frac{3}{4}$	$\frac{3}{5}$	$\frac{3}{6}$	$\frac{3}{7}$	$\frac{3}{8}$	$\frac{3}{9}$
Retarded 4 years .	—	—	$\frac{4}{4}$	$\frac{4}{5}$	$\frac{4}{6}$	$\frac{4}{7}$	$\frac{4}{8}$	$\frac{4}{9}$
Retarded 5 years .	—	—	—	$\frac{5}{5}$	$\frac{5}{6}$	$\frac{5}{7}$	$\frac{5}{8}$	$\frac{5}{9}$
Retarded 6 years .	—	—	—	—	$\frac{6}{6}$	$\frac{6}{7}$	$\frac{6}{8}$	$\frac{6}{9}$
Retarded 7 years .	—	—	—	—	—	$\frac{7}{7}$	$\frac{7}{8}$	$\frac{7}{9}$
Retarded 8 years .	—	—	—	—	—	—	$\frac{8}{8}$	$\frac{8}{9}$
Retarded 9 years .	—	—	—	—	—	—	—	$\frac{9}{9}$

Reading the lines of this table horizontally, it is seen how much less serious a retardation of 1 year becomes as the higher ages are reached ; at age 7 it indicates a half, at age 14 only one ninth.

In the next line the conclusion is more serious. A 2 years' retardation in a child who had been in a school 2 years would mean that it had learnt nothing, and unless there is some physical explanation the child is an imbecile or idiot.

In the fourth horizontal column the first fractions would indicate idiots ; the next imbeciles ; the last two would probably indicate feeble-minded, in the absence of physical causes.

A retardation of 7 years would probably indicate idiocy and imbecility throughout the line, the fractions being greater than would be found in children at school of average normal mentality.

It can also be seen readily which of the fractions are of the same arithmetical value, indicating children of different age, in different standards, yet on relatively the same mental level. Thus, first fraction vertical column age $7 = \frac{1}{2}$, second fraction vertical column age $9 = \frac{2}{3}$, third fraction vertical column age $11 = \frac{3}{4}$, fourth fraction vertical column age $13 = \frac{4}{5}$, all indicate children on the same mental level.

Of the 400 children reviewed, the boys and girls were practically equally distributed at all stages, and the groups into which they fell are shown in the following table, and compared with the succeeding mentally inferior class—the feeble-minded.

TABLE III.

	$\frac{1}{2}-\frac{2}{3}$	$\frac{2}{3}-\frac{3}{4}$	$\frac{3}{4}-\frac{4}{5}$	$\frac{4}{5}-\frac{5}{6}$	$\frac{5}{6}-\frac{6}{7}$	$\frac{6}{7}-\frac{7}{8}$	$\frac{7}{8}-\frac{8}{9}$
Dull and backward .	48.5	33.75	11.5	6.	.25	0	0
Feeble-minded .	5.4	24.3	40.5	16.3	13.5	0	0

A child more than 3 years retarded, *i.e.*, $\frac{1}{3}$, unless there are physical, or other than mental causes, to account for it, is generally mentally defective (feeble-minded or worse), and without such causes the children in columns 3, 4, 5 in Table III come within this category.

Eighty-two *per cent.* of the dull and backward group are in the first and second columns above the line of demarcation ($\frac{3}{4}$), and 70 *per cent.* of the feeble-minded are below the line. Thirty *per cent.* of the feeble-minded come in columns 1 and 2, and at first sight appear to be wrongly so placed. The explanation of the anomaly is that it is largely the practice for such children to be advanced to higher standards than they are mentally fitted for. This may apply also to the backwards, but not to the same extent, partly because they are not such a nuisance as the feeble-minded.

There remains for consideration 18 *per cent.* of dull and backwards who are apparently mentally defective. In children, like others, there are all stages of mental ability. A child who is backward solely on account of inherent mental incapacity is suffering in the same way as a mental defective, but in a lesser degree, and would be adjudged to be feeble-

minded only when the amount is excessive. The additional burden of physical defects, or other detrimental conditions, would have the effect of raising him from the $\frac{1}{9}$ - $\frac{2}{9}$ to $\frac{4}{9}$ - $\frac{6}{9}$ or higher groups, according to their number and severity, or they alone, without inherent mental inferiority, might relegate him to one of these later groups.

To what extent this is true of our 18 *per cent.* (71) of cases may now be considered.

TABLE IV.

Causes.		Forty-six children. $\frac{1}{9}$ - $\frac{2}{9}$	Twenty-four children. $\frac{4}{9}$ - $\frac{6}{9}$
(a)	Inherent dulness only	8	3
(b)	" " and referred for further exami- nation <i>re</i> M.D.	3	0
(c)	" " and one or more physical defects	7	2
	" " and employed out of school hours	2	1
(d)	" " and irregular in attendance .	6	8
	" " and deprivation (general)* .	0	1
	" " and late in start- ing school .	1	0
(e)	Late in starting school	1	1
	Irregular attendance and employed out of school hours	4	0
	" " with one or more physi- cal defects .	9	6
(f)	Irregular attendance	2	3
	Adenoids only	2	0
	Inattentive to lessons	1	0

* "General," as distinct from sense deprivation, *i.e.* where the child has not received proper attention such as children usually receive, as, for instance, where a child was kept in a cellar up to the period of adolescence.

This inquiry had for its object the definition of the degrees of backwardness and dulness (all were backward, part were dull, *i.e.*, backward by reason of inherent mental incapacity), and the causation thereof, but the opportunity is also taken to briefly survey these causes, and discover what ameliorative measures are thereby indicated as desirable.

The outstanding ætiological factors are :

Physical defects (53 *per cent.*), irregularity of attendance (52 *per cent.*), unfavourable home surroundings (25 *per cent.*), inherent dulness (36 *per cent.*).

Dealing with physical defects first, although they amount in the aggregate to 53 *per cent.* (omitting defective speech, which is a secondary condition), in 10 *per cent.* only do they represent the sole cause. This is made up of those cases where the defect is of such intensity as to produce retardation in otherwise ordinary children, and of other cases of lesser intensity, but sufficient to weigh down the balance against those near the level of what we may call for convenience the lower limit of normal intelligence.

The importance of physical defects as causative factors must not be minimised, for in the aggregate their effect is very great. Means are available, and are now more or less adequately provided for by Local Education Authorities, under the Education (Administrative Provisions) Act, 1907, to treat such defects in children of school age. The need will not be entirely met until children under school age are provided for in similar manner, because untreated defects among them are often attended with consequences which are permanently crippling.

Irregularity of attendance was present in 52 *per cent.* of the children. As a single factor it was present in only 15 *per cent.* Irregularity of attendance will always remain a frequent cause, until the advent of an improvement in the general health of the school child, better home conditions, and a more enlightened and educated body of parents.

Unfavourable home surroundings were recorded in 25 *per cent.* of the cases. It is not given as the sole cause in any instance, as other fundamental conditions were not difficult to trace. Unfavourable homes are to a large extent a reflex of mental abnormality or inferiority, such as ignorance, drunkenness and crime.

Poverty was often the apparent reason, and it must be understood that, though in many cases this is due to misfortune, and may be the result of a cruel economic system, nevertheless it is those most inefficient mentally, or with vices indicative of instability of mind, who are the first to go under. Although contributory and aggravative, the influence of this condition as a primary cause is probably slight. As regards amelioration, education, improved housing, and attention to public health are essential for this as for other sections of society, though by themselves they will prove inadequate, unless other measures are adopted to raise the mental and moral tone of this class.

Inherent dulness, although only put down after a thorough scrutiny of all other causes, was present in 36 *per cent.*

It was a sole factor in 17 *per cent.* of the 400 children.

A family history of dulness, epilepsy, and mental defect was obtained in 16 *per cent.*, which, owing to the difficulty of extracting the full truth, is probably an under-estimate.

Because it was easier to assess the extent to which physical defects and factors other than inherent dulness, operated as causes, the estimate of the amount of the latter here given is probably too low, and if it had been possible to trace with certainty every case to its source, a ratio nearer 50 than 36 *per cent.* would have been arrived at. This apart, the figures here given indicate that the chief cause of backwardness in school children is inherent mental incapacity, and that the problem of how best to deal with such cases will not be adequately solved until that respecting the classes from which they are chiefly recruited—*viz.*, the feeble-minded, imbecile, idiot, insane, and mentally abnormal generally—has been satisfactorily adjusted.

Nucleinate of Soda: Its Use in Acute Mental Disorders. By COLIN MCDOWALL, M.D.

AT a time when there is a gradual but certain change spreading through our methods of treatment of the insane, and chemical compounds are being replaced by other methods, it may appear unnecessary to record results obtained by the use of drugs. But this short paper is intended only to give

my experience as to the effect that nucleinate of soda has upon the progress of acute mental disorders.

Nucleinate of soda has for its active ingredient a substance which is a derivative of starch, and has the property, when introduced into the body, of increasing the number of polymorphonuclear cells in the blood. It has been used in surgery to increase the resistance of a patient suffering from acute peritoneal infection, and in similar cases. In order to demonstrate what its effect would be if used in persons the subjects of acute mental disturbance, I tried it in a number of cases, and this short paper is merely to record the results. Six cases of excitement, with more or less well-marked confusion, and six cases of depression, were selected, and it is chiefly upon these that my remarks are based.

The method of procedure was simple. The patients were examined on admission, and a quantitative and a qualitative blood-count made of the white cells. The leucocyte count in excitement with confusion, and in the majority of cases of depression, is raised at the beginning of the attack. That statement is, I think, pretty generally admitted. It is unfortunate that we do not always get cases of depression as early as we should, and it is probable that in those cases in which we find no sign of a leucocytosis on admission an explanation can be found in the fact that the more acute symptoms are passing off, and so the blood changes are not so readily demonstrated. In excited cases, on the other hand, the patients are soon found to be too much for the care of relatives, and they, consequently, come early under notice.

What, or how much importance should be attached to the leucocyte count is a matter of discussion, and I do not mean to engage in it, but rather to state simply the results of raising by artificial means the number of white cells by nucleinate of soda. The dose varied from 20 gr. to 1 drm. The drug was dissolved in water, and the solution was boiled in order to render it sterile. The strength of the solution was usually half a drachm to one ounce of water. After cooling, the fluid was injected into one or both arms of the patient. The syringe, the operator's hands, and the patient's skin were rendered sterile by the usual means. It may be useful to give the details of one or two cases.

CASE 1. This patient was a female, æt. 40 ; it was her

first attack of acute excitement, but she had shown signs of mental derangement for some months previous to admission, and had been treated surgically for a floating kidney. This operation was not successful in warding off the mental attack, and when admitted she was in a state of much excitement, was confused, noisy, and refused food. The blood showed a leucocytosis of 10,000, and the polymorphonuclear percentage was 80. She was given nucleinate of soda by the mouth, but this had no result upon the blood-count. Twenty grains were then injected into the subcutaneous tissues of the arm, and the white cell count rose from 6,000 to 11,400, while the differential count of neutrophile cells rose from 57 to 75 *per cent.* Following the injection the patient, who had for a month been very restless at night, had the best night since admission. Three days later half a drachm was again injected, and again the patient had a better night; she was quieter, but there was no improvement in her conversation, which remained rambling and incoherent. Twenty-four hours after this injection the leucocyte count was 14,600, and two days later it fell to 7,000. A larger dose was now tried (1 drm.), and for the two days following the figure reached was over 13,000, while the percentage of neutrophile cells rose as high as 88 *per cent.* Two further injections were given, and blood-counts systematically made for over three months. On each occasion following the injection of the nucleinate of soda an increased leucocytosis was found, but this, when not influenced by the drug, showed a tendency to fall quickly. The patient slept better, and was generally less excited when under the influence of the artificial leucocytosis, but immediately relapsed into her earlier restless, noisy state when the injections were discontinued. Five months after admission the leucocyte count was 6,000, and the percentage of polymorphonuclear cells only 64. At this observation I noticed an eosinophile percentage of 7, which is high, and as a general rule a sign of good prognosis. Unfortunately this has not been borne out by the facts, as the patient did not do well. She is now a chronic lunatic, demented, untidy, and self-centred.

The second case is that of a woman approaching the climacteric period. She had an attack of depression twenty years previously. The blood was examined daily for five

days following admission. The first observation showed a leucocytosis of 6,600. Following an injection of 20 grs. of nucleinate of soda it rose to 13,000, but next day fell to 9,000, and the following day to 8,000. Again 20 grs. were injected, and the count rose to 13,000. Mentally, on admission, she was erotic, noisy, restless and incoherent, and quite disorientated. She was sleepless at nights; following each injection she was quieter, and had good nights. The treatment was continued for six weeks, and in all five injections were given. It cannot be said that the method was successful, except as a temporary measure, for as soon as the blood-count fell, as a result of the influence of the drug becoming less, the patient was as noisy, restless, and incoherent as ever. This woman is now a dement, with no prospect of improvement.

The next case I would mention is that of a young girl who was suffering from her fourth attack of excitement. She had a leucocytosis of 13,000 on admission, with the high neutrophile count of 89. This high percentage of neutrophile cells lasted for a month after admission. She refused food, however, and was very excited, and an injection of 30 grs. of the drug was tried with very good results. She became at once quieter, less talkative, and took her food with little persuasion. Later in her illness she again became very noisy and restless, and an injection of half a drachm had a very quieting effect. She ultimately made a good recovery. It is not claimed that the injections had any effect upon the ultimate issue. This girl would in all probability, in view of her previous recoveries, with ordinary care have made a good recovery, but the treatment certainly had the effect of making the outlook more certain, and the problem of refusal of food was readily solved.

Another case was that of a young married woman, who had at least two previous attacks. The present one was the result of child-birth, and she was very noisy, restless, and incoherent when first seen. The leucocyte count was only 6,400 on admission, with a polymorphonuclear percentage of 67. This condition continued for four days, when half a drachm of nucleinate of soda was injected into the arm, and a very smart reaction followed. The blood-count rose to 13,000 and the bodily temperature rose to 38.4° C. After the injection the patient was quieter, less restless, and in every way improved.

Unfortunately, this condition of affairs was not maintained, and she became again very noisy and restless, the leucocyte count meanwhile fell to 6,000. Twenty grains of the drug were then administered subcutaneously, and again a very lively reaction took place, the leucocytosis reaching 18,000, with a neutrophile percentage of 83. From time to time the blood was examined, and the count was always found low when the patient was not under the influence of an artificially produced leucocytosis. She did not make any steady progress, but had intermittent attacks of mild excitement. Her memory was not to be relied upon, and she was unstable and erratic. This woman, when I last saw her, was quiet and well behaved, but somewhat dull and self-absorbed. There was little encouragement for the patient to recover, because her home life was not a happy one, and at each pregnancy she had become insane.

The last case of excitement to which attention is drawn is that of a girl who showed all the symptoms of primary dementia, together with much restlessness, confusion, and excitement. Echolalia, echopraxis, and verbigeration were prominent symptoms. On admission there was a leucocytosis of only 7,400; after five days this was raised to 18,000 by 1 drachm of nucleinate of soda. The patient rapidly improved, and the day following the injection she was quiet, lay restfully in her bed, and took her food well. After a fortnight the blood showed a return to the state on admission, and 20 grs. were injected under the skin. The reaction again was very active. The bodily temperature rose to 38° C., and the effect upon the patient was good. My old notes say "improved very much indeed. Coherent." From this time a gradual convalescence set in, and the patient ultimately was discharged.

Regarding the employment of nucleinate of soda in cases suffering from depression, my experience is that it is of no service, and, indeed, actually a harmful agent. It is not necessary to give the cases in detail. In each it tended to aggravate the state of misery, and had no good effect upon the amount of sleep obtained.

The result of the injection of an aqueous solution of nucleinate of soda in the skin shows itself in two ways, a local reaction, and a general reaction. About three hours after the injection there is a certain amount of discomfort, which gradually increases to a maximum at the end of twelve or fourteen

hours, at which time there is some tenderness, redness, heat, and swelling, the classical signs of inflammation, but the reaction is a sterile one, and usually subsides at the end of thirty-six or forty-eight hours. The glands were not painful, and in no case was there any suggestion of septic mischief. This is noteworthy, as some of the subjects who were operated upon were very dirty, restless, and troublesome. Constitutional disturbance was shown by a rise in temperature in every instance of the cases of excitement. In the cases showing signs of depression the local reaction was much less noticeable, and indeed sometimes scarcely showed at all upon the arm. Elderly subjects gave a less marked reaction than the young. The state of the blood and the febrile temperature were evidences of the general constitutional disturbance; and a leucocytosis, more or less marked, was found to be produced in all cases.

When one seeks for an explanation as to the method by which the drug produces its effect the question arises: Does it act by increasing the number of polymorphonuclear cells, or are the pain and tenderness the chief agent? In the former alternative the factor is physical and physiological, in the latter it is psychical. In the former it is a question of increasing the resistance of the individual by raising the white cell count, in the latter the matter is not so readily explained. In depression we have already a mind filled with painful thoughts, everyday events are viewed in a wrong perspective, trivial shortcomings are magnified into great failures, the individual is introspectively pessimistic. Add to this state of anxiety and unhappiness a physical state in which, if there is not actual pain, there is certainly considerable discomfort, and we only make things worse, and open the way for delusions to develop by further drawing the patient's attention to his unhappy state. On the other hand, in excitement with confusion there is a never-ending flight of ideas, a restless crowding out of consciousness of one thought after another, hallucinations may arise to further embarrass the patient, and the mind is unable to concentrate its attention upon any one mental factor. But let there be created a physical condition, such as can be produced by artificial means, which by its persistence demands the attention of the patient, and this will be accompanied, for a short period it is true, by a cessation of the rapid flow of thought, and a concentration on the reality of a physical

state, rather than on the changing scenes of an unstable psychical condition. In giving this somewhat crudely worded explanation, I am fully conscious of my inability to formulate a theory which is satisfactory, even to myself.

That is one side of the question, and I must say something of the other. We know that there are changes in the blood of those who are the subjects of acute mental disturbances. The results published by different and independent observers closely approximate to each other. The variety of terminology used in describing the cases has made it at times difficult to tabulate the records, but in excited patients, who also have signs of confusion, the evidence of results so clearly points towards the infective nature of the disease that this side of the problem must not be too readily dismissed. The dry mouth, foetid breath, febrile temperature, rapid pulse, and, lastly, the increase of white cells in the blood, are all evidence of the absorption of bacterial products. The bacteria have been searched for, but without result as yet. It is the polymorphonuclear cell that plays the chief part in the destruction of bacterial toxins, and by raising the number of these cells we raise the efficiency of the individual to fight successfully against the invasion of micro-organisms. Scientifically, we admit that the treatment of disease without a definite knowledge of the cause of the disease is unsound. But we have done it in the asylums of this country for many years, and with some success.

Is it possible that we have in reality two causes in all acute mental states—a physical as well as a mental factor? Recently this thought has forced itself upon me with more and more persistence. I have been working upon soldiers returned from the front. These men have been exposed to direct physical force in the form of shell explosions, and in addition in many cases a psychical factor can clearly be demonstrated. Here we have two factors combining to produce one result, and so it may be in the mental states which I have described. By creating an artificial leucocytosis we may be adopting a correct mode of treatment.

Nowadays the tendency in some quarters is to believe that psychical diseases must have psychical disturbances as causal factors. The basis for most of the psychoneuroses is a shielded memory, whose armour it is the duty of the physician to

pierce. Even so, it is justifiable to use any means that will render the patient's mentality more readily capable of being influenced by psychical methods. A wildly excited, noisy person has been rendered quiet for a limited period by nucleinate of soda. Advantage may be taken of this state to discover and explain the factor causing the mental breakdown. Pain itself is not sufficient to account for the change in the mental state. Everyone has seen maniacal patients inflicting upon themselves a very considerable amount of pain with apparent indifference. The pain, moreover, caused by the injection is not sufficiently severe to interfere with the rest of the patient. As long as the limb is kept at rest, the feeling is no more than a sensation of heat ; the patients do not complain of throbbing. There is some tenderness, and this is, I think, one point, while another is that the state of affairs is not understood by the patient. A certain amount of attention is drawn to the affected area, and the patient is by force made to do a corresponding amount of self-examination, during which time he tries to concentrate his attention upon his present condition. The disadvantage of the drug is the amount of reaction, and consequent pain and tenderness it produces. There is thus a danger, which should be carefully guarded against, that the patient may regard the treatment as a form of punishment. There is the greater danger that the staff may think the same. It is well therefore that the whole operation should be explained, and that on each occasion a blood examination should be made. Not only should a blood-count be done for this reason alone, but also the dose should be regulated according to the degree of the leucocytosis found before injection, and by the subsequent result.

These rather meagre notes and remarks will serve to show merely my own experience of the use of nucleinate of soda, and, with my reservations as to the procedure of employing it, I can say that in excited, noisy cases of acute mental disturbance it is useful as a means of allaying excitement and encouraging rest, and I believe produces thus a state of mind which is, at an earlier stage than would otherwise be the case, ready to receive further treatment by other methods.

Clinical Notes and Cases.

General Paralysis of the Insane in Federated Malay States. By WILLIAM F. SAMUELS, Medical Superintendent, Central Lunatic Asylum, Tanjong, Rambutan, Federated Malay States.

ON first coming to the Federated Malay States I was led to believe that general paralysis of the insane was unknown. Seeing that syphilis is very common, it seemed strange that general paralysis of the insane should not occur. Very shortly, however, after the Central Asylum was opened I noticed some cases which were extremely like general paralysis of the insane. These I watched and studied very carefully, and in a short time became convinced of the existence of the disease. I have mentioned the presence of general paralysis of the insane in each of my annual reports, but think it is now time to go further, and demonstrate, as far as reports of actual cases can, the existence of general paralysis. Probably the best way to give proof of its existence is to quote three cases which can hardly be mistaken for anything else.

CASE 1.—C. M. S—, a Chinese, æt. 39, a detective sergeant speaking very good English, was admitted to the Central Asylum on January 15th, 1913. He had a history of syphilis and alcohol, and had led rather an irregular life. The medical certificate said he was exalted; "calls himself President of Perak Chamber of Commerce." Suggests his ward should be connected with all the towns in the Federated Malay States, saying, "I want this done immediately."

On admission he presented the appearance of a well-nourished Chinese. He was exalted; called himself Prince of Japan; was going to be made President of the Chinese Republic. His pupils were then regular, equal, and reacted to light. Knee-jerks present. He was restless that night and noisy, but slept after 2 dr. of paraldehyde.

Next morning when I saw him I noted that "there was a slight thickness about his speech with an occasional catch, but no slurring." He was voluble, restless, and full of grandiose delusions. A week later he was restless, and in the highest spirits, showing the condition of *bien être* to a marked degree; declared his intention of going to the moon and taking us all with him. Speech was jerky, and though he could say Royal Artillery, he did so slowly and with infinite care. Tongue tremulous and protruded with a jerk. Pupils equal, regular, and react to light and accommodation. A week later the light reaction of pupil had become sluggish. "His exaltation is marked, and his delusions

fantastic. He keeps Napoleon Bonaparte in St. Helena guarded by 1,000 men armed with sixty to eighty pistols each."

Later he became emotional, and then confused and very stupid. Markedly amnesic. "He begins a sentence, and appears to forget before he is half-way through what he is talking about, and his voice fades out." His mind soon cleared up from this state, and he again exhibited grandiose delusions, and became very generous, promising millions to all and sundry.

In March he was described as "restless, facile, fatuous, and extremely expansive." Lips and tongue tremulous. Pupils equal, but light reaction extremely sluggish. He went on in much the same state for another two months or so, when he became very destructive. He was extremely facile, and though his delusions were more or less forgotten, he immediately accepted them when reminded of them.

On April 4th pupils were unequal, the left being contracted, and they exhibited the Argyll-Robertson phenomenon. Speech slurring to a marked degree. Knee-jerks were present, as they had been all along.

On June 26th he exhibited marked twitchings all over, especially noticeable on the left side, and was confined to bed. The next day he was quite paralysed. Was almost inarticulate. Pupils fixed. Tongue and lips very tremulous. Control of his bladder and rectum lost.

From that on, though the paralysis passed off to a certain degree, he remained bedridden, picking at the blankets with trembling fingers; taking no notice of his surroundings; constantly grinding his teeth; passing urine and fæces under him.

He died on July 4th, 1913. Unfortunately his friends refused to allow a *post-mortem* examination.

In this case we have a very good picture of general paralysis of the insane, as shown by the exaltation, grandiose delusions, extreme facility, the tripping now and then over a word; later, actual slurring of speech, tremulous lips and tongue, unequal pupils with loss of light reaction; lastly, the seizure, with restless picking at bedclothes, and grinding teeth. Had anyone seen him at this time, even from a distance, he must have recognised the case as one of general paralysis of the insane. It was unfortunate that no *post-mortem* could be obtained, but I think the clinical history is clear enough.

CASE 2.—L. K—, Chinese, a small Mining Towkay, was admitted to the Central Asylum on March 23rd, 1912. No history could be obtained. He was noisy, restless, and exalted on admission. When I saw him he was full of delusions of an extremely grandiose nature. Declared he "owned all the shops in Ipoh and America." All notes issued by the Chinese Government required his signature. He became President of China shortly after this, and then his generosity knew no bounds. Mr. Ah Fatt, Senior Dresser, Central Asylum, was to become Vice-President, while I was to receive the revenue of all the Chinese railways. He then became very restless, and an extreme trouble in the wards, as he con-

tinually became involved in fights, in which, unless rescued in time, he always got the worst of it.

His grandiose delusions persisted, and his generosity increased. He became King of Korea, and offered to make Mr. Ah Fatt King of "England and Manila." His expression was at the time described as fatuous, and his knee-jerks were found to be exaggerated. This continued for six months without his speech becoming in any way involved, or tremors of lips or tongue appearing, though his face was noted to be rather expressionless and his skin greasy. His pupils remained equal, and reacted normally. On September 23rd, 1912, however, it was noted that his pupils reacted very sluggishly to light, that his face was vacuous, and that he was becoming demented. He had begun to pick his face, and had two small ulcers on his forehead as a result. His speech now began to show a slur, though his lips showed no tremor. There was, however, a slight tremor of his tongue.

There was a steady advance on the road to dementia for the next three months, and then, on February 28th, 1913, he had a seizure. This put all doubt at rest. He became unconscious, with pupils fixed, marked tremulousness all over, passing of urine and fæces under him. He remained in this state for about two days, and then began to improve slightly, though he remained demented. He picked at his clothes, ground his teeth, and remained wet and dirty. By the end of March he was up and about again. However, at 9 p.m. on April 6th he had another seizure. The same process was repeated. After this seizure he was never the same, and he remained quite demented, while his tongue and lips were now tremulous. He lasted till May 17th, 1913, when, after another seizure, he died. The friends in this case refused a *post mortem*.

CASE 3.—S. H—, Chinese, occupation unknown, was arrested for "throwing stones in Papan Town," and admitted to the Central Asylum on March 30th, 1912. He had syphilitic scars. No history. My first note on him was as follows: "His skin is greasy, and he has a distinctly 'flat,' expressionless face; has marked labial and glossal tremor; slurs his words, as well as clipping the ends; is extremely dull and stupid, and can give little or no information about himself; pupils are equal and react to light; knee-jerks present." A week after, however, his pupils no longer reacted to light. Later he became very resistive, and if interfered with shouted loudly. His speech became more and more involved, gait shuffling, knee-jerks abolished. The next thing noted about him was that he began to pick at his baju (coat) with tremulous hands, and without any apparent object.

I find a note dated May 14th, 1912, which says: "Speech much involved; complains in a drawling tone, and with a marked slur, that he has had no food, although he has only just finished his dinner; movements are slow and uncertain; wanders about in an aimless fashion." On May 27th he had a seizure and became unconscious. Completely paralysed; twitching of his facial muscles, and to a less extent his limbs; pupils fixed; conjunctival reflex absent; knee-jerks abolished; passing urine and fæces under him. On May 30th he lay in bed making small, restless, picking movements with extremely tremulous hands. Was quite inarticulate; limbs very tremulous; tongue tremulous and inco-ordinate; pupils fixed. He died on June 6th, 1912.

A *post-mortem* was done in this case, and the following found :

There was nothing abnormal noted in the thickness of the skull or in its structure.

The dura mater was adherent to the skull, and the arachnoid to the dura to some extent, while there were numerous adhesions between the pia and the brain. The pia-arachnoid had a milky appearance, especially in the frontal area, while there were numerous greyish spots about the size of a pin-head. The cerebro-spinal fluid was increased in amount. The convolutions showed some flattening, and the grey matter was diminished in thickness. There was also a sandy feeling in the floor of the fourth ventricle in the region of the calamus scriptorius. My attention was first drawn to this "sandy feeling" by the late Dr. Conolly Norman, of the Richmond Asylum, Dublin, and I have found it very constantly in cases of general paralysis of the insane.

In Case 1 there was no doubt about the diagnosis, but the other cases might be thought to present some difficulty.

In Case 2 the symptoms on the mental side were well marked, *viz.*, the exaltation, feeling of well-being, grandiose delusions, with the peculiar combinations without any clear association of ideas—for example, he owned all the shops in "Ipoh and America," would make Mr. Ah Fatt "King of England and Manila." Then, his restless, interfering ways, which were continually getting him into trouble.

It will be noticed that it was six months before his pupils showed any abnormality, and that it was only then that his articulation became defective, and that he showed any tremor of tongue and lips. Before that his face had lost expression, and his knee-jerks were noted to be exaggerated ; though the last symptom does not appear to be of any value, as in general paralysis of the insane they may be normal, exaggerated, or abolished.

Though the case was a very suspicious one, one would hesitate to diagnose general paralysis of the insane without having more to go upon than the mental symptoms. So that for six months there was considerable doubt. Then, however, the pupils became sluggish in light reaction ; at the same time slurring speech showed itself, as well as a glossal tremor. The seizure, however, put all doubt at rest. The subsequent history was very typical. The improvement, followed by another seizure. This, in turn, being followed by improvement, and then a third seizure closing the chapter. The small, restless, picking movements with tremulous hands, and the teeth-grinding, were very typical too.

It is unfortunate that no *post-mortem* could be obtained in this case, but I think the clinical picture at the end leaves no doubt as to its nature.

Case 3, too, was not a case such as one would expect from the descriptions one reads of general paralysis of the insane; but to one who has had experience of the general paralytic it was by no means an uncommon type. Dementia is, after all, the most constant condition in general paralysis of the insane. It is more often preceded by a state of exaltation, grandiose delusions, etc., though at times the disease begins with actual depression.

This man had the dull, "flat," expressionless face, labial and glossal tremor, and very soon loss of light reflex. Then the resistiveness, in one place I notice in my notes described as "mulish." Later, the small, restless, picking movements, etc., followed by the general paralytic seizure, clinch the case. As a matter of fact, this demented type is by far the commonest type seen in the Federated Malay States, as far as my experience goes. These three cases, I believe, are sufficient to establish the fact that general paralysis of the insane is a disease which does occur in this country, and I now propose to show that it is not even a very rare condition.

Taking the years 1912, 1913, and 1914, the first three complete years since the opening of the asylum, we find that, out of a total admission of 977, there were thirty-three cases of general paralysis of the insane, which gives a percentage of 3.38. The majority of cases were males, but there were three females admitted suffering from this disease. It must be remembered, however, that the total female admissions are much less than the male, and, as a matter of fact, the percentage of general paralytics to total admissions on the male side works out at 3.70, and on the female at 2.26. This percentage, though very much less than in England, is by no means negligible.

Thus it will be seen that not alone is general paralysis of the insane found in the Federated Malay States, but it cannot even be described as a rare occurrence.

Occasional Notes.

Female Nursing of Male Insanc. '

THE question of the adaptability or suitability of the method of female nursing of male patients in asylums, which is the all but universal practice in general hospitals, if not exactly what might be termed a "burning" question, has been forced into unexpected prominence during the present crisis of affairs. The military and naval requirements of a great country fighting not merely for a great ideal, but for, if perhaps the less noble, certainly the more urgent and so to say personal object of maintaining its own existence, necessitated the raising—and at very short notice—of our two great services to their maximum strength, and, therefore, a demand on the male population of the British Empire of such magnitude as has never been experienced before. This demand has, as we know, been promptly and liberally responded to, and by no class of men perhaps more readily than those serving on an asylum staff, over 3,000 of whom, as shown in the Journal of October last, have joined the colours. Such a drain on the at no time very ample nursing resources of these institutions could not fail to cause very serious inconvenience. The shortage occasioned had in some way or other to be compensated for, if even to only a limited extent. In some cases men of mature age have been employed to replace those who have left, but these are probably not procurable in any great numbers owing to the demand for middle-aged men for munitions and other work connected with the war, and also for doing the enormous amount of business—trade, agriculture, etc.—which must be carried on throughout the country generally. Consequently, resort to the employment of women as substitutes for male nurses has had in many instances to be adopted.

The time and the hour, therefore, were not inopportune for a discussion on this subject, not merely with respect to the propriety or otherwise of initiating a radical change of this kind in asylum nursing during circumstances of exigency, as at present, but as regards the merits and demerits of the deliberate and permanent adoption as a matter of principle of such a departure from the recognised practice, which still obtains in

the large majority of asylums in all parts of the world, and independently of any compulsory influence such as just now exists. Dr. Robertson's paper has, in fact, appeared at just the psychological moment when minds are more or less in a state of preparedness to give the subject favourable consideration.

At a meeting of the Scottish Division at Larbert Asylum in November, 1901, Dr. Robertson read a paper on "Hospital Ideals in the Care of the Insane," in which he gave a sketch of the methods of nursing which had been adopted, and were in actual operation, in that institution for some two years previously. The nursing of male insane patients by females, although not an absolutely novel proceeding—for sporadic attempts in that direction of a tentative nature had been already essayed but not persevered in—seems to have been for the first time seriously and successfully employed in the Stirlingshire Asylum. At the commencement of his paper Dr. Robertson emphasised what he termed the *dominating principle*, which actuated him in his adoption of this system, namely, "the desire to make the asylum a medical institution, worked on the same medical principles and with the same nursing ideals as our great general hospitals." The measures which he proposed to himself, and which we may add he has successfully carried out, were, briefly: the abolition of single rooms, and the substitution of associated dormitories (single rooms he regarded as a relic of the old prison-like organisation of asylums); continuous personal supervision by night as well as by day, with a large increase of the night staff; the employment of female nurses on the male side, supplemented by a number of assistant matrons to supervise them, and to "do duty *within the wards and among the patients*," these officials to be well paid and regarded as filling highly responsible posts to which prestige and authority were attached, and to be selected from the ranks of trained hospital nurses. This last proviso he regarded as absolutely necessary, on the principle that "one can no more be a skilled mental physician without studying general medicine than a skilled mental nurse without studying general nursing." The new system seems to have worked smoothly and satisfactorily from the first, and after two years' experience of it Dr. Robertson was in a position to state that he had "no accident to record, no assault to describe, no scandal to report."

In the discussion which followed the reading of the paper it is to be noted that, while there was some difference of opinion as regarded the details, not a single speaker expressed himself as opposed to the principle of the methods of nursing advocated by Dr. Robertson. The late Sir Thomas (then Doctor) Clouston, a clinician, as we know, of the very first rank, whose opinion must be estimated as second to none, mentioned how, when going round the wards of the Larbert Asylum at night with Dr. Robertson, he had been deeply impressed with the quietude, and with the practical success of the system which he saw in operation. He related one striking little incident: "Dr. Robertson had the bad luck to get one or two of the worse patients in Morningside. He was beyond measure astonished and exceedingly pleased to find a woman, who, when in Morningside, was a homicidal dangerous inmate and a most objectionable woman, and who when there never slept out of a single room, lying calmly and sweetly asleep in one of the big observation dormitories."

At the annual meeting in London, July, 1905, Dr. Robertson again brought the subject before the members in a paper, only a part of which was published, on "The Employment of Female Nurses in the Care of Insane Men in Asylums." His experience in the method had by that time become considerably extended, and so far from his opinion as to its value having been shaken as time went on, his belief in its excellence was stronger than ever. If support for his arguments was needed, it was ready to hand in the fact that a number of asylums in Scotland had adopted the system, and in none of those where the experiment was made had the practice been abandoned. One point that was brought into prominence on this occasion, both in the paper and in the discussion that followed, was what Dr. Bond called the "crux of the matter," *viz.*, that to insure success the staff must be entirely female, and not mixed. In the early stages of the movement, when only tentative measures were being tried, at first attendants' wives were employed to take charge of the male patients along with their husbands; and, later, a mixed staff independently of any such relationship between the sexes. Each plan in turn proved more or less a failure. Hence Dr. Robertson came to the conclusion expressed in his paper, that "it is only when women are in complete and responsible

charge that the full benefits of the system of female care and nursing can be enjoyed."

A good deal of water has flowed under our bridges since then ; and now, for the third time, the writer of the paper already referred to has come before the Association and presented the results of a more lengthened period of observation, and a riper experience of this method of nursing in all its details. The project is no longer a mere bantling of tender growth, as in the early years of its adoption ; it has developed into a full-fledged scheme, gradually elaborated into its present condition of complete and thorough organisation. And no one who listened to Dr. Robertson's narration of facts regarding the high state of nursing efficiency which obtains in Morningside Asylum could be surprised at the warmth with which he advocated a trial of the plan in other asylums, could doubt for a moment that his efforts to achieve his object have been crowned with success. For many years, even in Scotland, Dr. Robertson had to fight an uphill battle before the system, which in his hands had proved so efficient, succeeded in winning the approval of his *confrères* and leading them to favour its adoption in the institutions under their charge ; and the contrast between medical opinion on this subject such as prevailed in those early days (when the nursing of male insane patients by females was stigmatised by an eminent member of the specialty as "preposterous," and the adoption of hospital principles in asylums as "a great fad"), and that which is almost universally accepted in Scotland at the present time is best expressed in Dr. Robertson's own words : "This method of nursing is now as distinctive and as firmly established a feature of the Scottish system of care for the insane as the well-known Boarding-out System. It is employed in some measure or other in all but two of the important asylums of the country, and in these the superintendents have so far failed to introduce it, not because they were opposed to it on principle, but on account of structural difficulties with regard to supervision, housing, etc. This wonderful unanimity of opinion and practice amongst Scotsmen, whose national proclivities do not tend to concord, is remarkable testimony in its favour, and points to the manifest practicability and overwhelming merits of the system." He speaks in glowing terms of the beneficial results that have followed the employ-

ment of hospital-trained nurses in asylums, and does not hesitate to divulge the nature of his ulterior aim, and what he means to be the acme and crowning achievement of the task he has set before him, in these words: "The trend of events in Scotland has been such that this employment of female nursing in the male wards, when seen in its proper perspective, is found to be only a part of a much greater scheme or ideal that has flowed like a tide over the land—that of the *Hospitalisation of the Asylum*."

It is not a matter for surprise that a thesis such as this should be regarded by not a few as embodying views that are revolutionary in character, and to a great extent impracticable. And yet, there is the broad salient fact staring us in the face, that the system as advocated has been in practical operation for some years past in most of the asylums in Scotland, that there, at least, it can be demonstrated to be an unqualified success, and—a most important consideration—that none of those who have made trial of it would, on any account, revert to the old order of things. That one hard fact alone goes far to discount most of the objections which have been advanced against it, and to attach a merely academic value to unfavourable criticism. And it was, perhaps, fortunate that in the discussion which followed the reading of Dr. Robertson's paper the expression of adverse opinion was in the hands of such able speakers as Doctors Soutar and Brander, than whom few, if any, are better qualified to take a rational view of any question that may present itself for their consideration, and to express their ideas in a fair, unprejudiced, and convincing manner—and Dr. Robertson would himself be the first to welcome criticism from such a quarter. And yet there was no objection advanced by them which is not capable of being met and overcome in the practical working of the system. There is room, no doubt, for difference of opinion as to the relative superiority of male and female attendants, and there are few who would not be willing to admit that the male staffs of asylums at the present day, on the whole, discharge their duties in an excellent manner. But even if this were universally true, and if every individual male attendant were, as regards his capacity for the care and management of patients, on a par with an asylum nurse, still that would not invalidate the claim that *as a system* female nursing

is preferable. The chief difficulty is, perhaps, to be found in the fact that many, if not the great majority of, asylums are so constructed that the necessary adaptation for such a radical change would hardly be feasible. This is certainly a formidable obstacle, and in some cases probably insurmountable. Still, it might not be impossible to make such alterations in most of them as would admit of the new methods being even partially adopted. And in the case of new asylums being erected it ought in future to be made a prime consideration that they should be so constructed as to afford facilities for such a scheme of organisation in the nursing department. As a matter of fact it is scarcely correct to regard this method of nursing as exclusively Scottish, as since the year 1902 a system of nursing male patients by female nurses has come into operation in several of the London asylums. It was first started at Bexley, and was subsequently adopted in the Epileptic Colony, at Horton, and Long Grove. The villa system would be the ideal one for such institutions, each of the component buildings forming a unit in itself, having its own independent arrangements.

The sexual difficulty, on which sometimes stress is laid, cannot really be said to exist. As regards patients with propensities of this kind no one proposes that they should be put in the charge of females; in their case everyone is agreed that male attendants are necessary.

On the whole it is probable that most, if not all, of those who approach this subject in an impartial spirit and with unprejudiced minds, will come to the conclusion that Dr. Robertson has proved his point, and that the experience of Scottish asylums has established beyond cavil the advantages of a system which, without hazarding too confident a prediction, is not unlikely, sooner or later, to be generally if not universally adopted throughout the asylum service.

Part II.—Reviews.

National Association for the Feeble-minded. Annual Conference Report, 1915.

“The Methods of Examination best Adapted to Ascertain the Presence, or otherwise, of Mental Defect,” formed the subject of

discussion at the Conference. The subject is both important and practical, and the various contributions contained in the report merit the close attention of those who are called upon to deal with cases coming under the provisions of the Mental Deficiency Act.

Sir Bryan Donkin, in his introductory remarks as Chairman of the Conference, brings into prominence the difficulty of attempting to formulate exact definitions in the differentiation of "normal" and "feeble-minded," or of attempting to establish a hard and fast line between them. Such cases as come under observation cannot be judged by the intellect alone. He truly points out, "It is a matter of *defect of mind* in all, as evidenced chiefly by careful and often prolonged observation of conduct, and by study of the history in each case, leading to an inference of the incapacity of the subjects to adjust themselves effectively to their social surroundings." Actual "mental tests" for mental deficiency can hardly be more than one factor in arriving at a conclusion as to the status and course of treatment indicated in any given case. The most reliable test is, after all, actual life, which reveals more truly than anything else the individual's mental capacity.

Within the limits indicated in the subject for discussion the papers cover a wide field. This may be briefly indicated by a list of the titles and contributors.

"A Scheme for the Detection and Treatment of Mentally Defective School Children," Dr. Robert Hughes.

"The Detection of Mental Deficiency on the Large Scale in School Children," W. H. Winch, District Inspector of Schools, London County Council.

"Emploi des tests de Binet et Simon chez les Enfants Anormaux Anglais et Belges," Dr. Boulenger.

"What Tests in Childhood are best Calculated to Throw Light Upon their Capacities for Future Work," Dr. W. A. Potts.

"The Value of a Uniform Examination of the Feeble-minded for Education Purposes," Dr. Allan Warner.

"Practical Application of the Binet Tests," R. L. Langdon Down.

"The Binet-Simon Tests as a Means of Grading Mental Defectives under the Mental Deficiency Act," Dr. W. B. Drummond.

"The Classification of the Mentally Defective as regarded from a Legal Standpoint under the Mental Deficiency Act," Dr. E. B. Sherlock.

"The Characteristics and Identification of the Feeble-minded Criminal," Dr. Charles Goring.

"Classification of the Mentally Defective from an Administrative Point of View," Dr. H. W. Sinclair.

All these papers are essentially practical in character and will repay a careful study.
H. D.

Wishfulfilment and Symbolism in Fairy Tales. By DR. FRANZ RICKLIN.
Translated by Dr. W. A. White. New York : Nervous and Mental Diseases Publishing Co., 1915. Pp. 90. Roy. 8vo.

It is well known that from the Freudian standpoint fairy tales are constituted in somewhat the same manner as dreams, on the basis of the unconscious, and that they thus form the material for a psychology which may be brought into line with that of hysteria and mental disease.

This idea stimulated Dr. Ricklin, of Zurich, who admits that he was at the time a novice in the field of fairy tales, to the present investigation. A student with broader philological and historical knowledge, could, he believes, have gained much more from the material, for fairy tales are the expression of the primitive human soul, and they express that general human tendency to wishfulfilment which in modern fiction appears in a much more garbled and complicated form.

In his general attitude the author ranges himself with Stoll and other authorities who refuse to accept the view that fairy tales can be accounted for by migration from some story-telling centre. They arise among different people, in different places, and at different times, by suggestive and auto-hypnotic processes which independently lead to more or less identical results. "Only the psychic foundation is everywhere the same." It is, therefore, all the more remarkable, in Ricklin's opinion, that the sexual element plays so large a part in fairy tales, and that the sexual symbolism they reveal agrees so closely with that found in dreams and in psycho-pathology.

As from the Freudian standpoint the unconscious can do nothing but wish, and as wishing is the business of dreams, Dr. Ricklin finds, as one might expect, that the fairy tale is, above all, "a wishfulfilling structure," often gathering its material from widely separate sources, from other fairy tales, and from myths. Similarly the psychoses produce wish-structures in which the patients are rich and powerful and of royal descent, marry royal personages, and witness the destruction of their rivals and enemies. Wish-structures can, indeed, occur in a number of clinical forms, in cataleptic states, in mimic automatism, in the progressive development of delusional systems.

Innumerable fairy tales (as well as myths) tell of magic gifts and qualities created by the human wish-phantasy. These are often devised as the therapy of a sorrowing heart. Ricklin quotes several beautiful fairy tales of the type of *The Shroud* in the Grimm collection, which tells how a mother wept for her dead child until the child came to her in vision, and told her that he could not rest in the grave for her tears had made his shroud so wet. The mother ceased crying, the child came again to say that now he could rest, and henceforth the mother was comforted. The wish-structure is very evident in the case of the common fairy tale of the peasant girl who marries a prince, or the shepherd boy a princess. Other tales reveal a vast variety of methods for bettering human deficiencies: seven-league boots, gold-producing animals, enchanted mirrors, magic wands, etc. The stepmother tales, of which Cinderella is the type, similarly illustrate the wish-structure. In this way such tales resemble dreams. In reading some of them, indeed, the author remarks, we find they might well be the relation of the dreams of a patient with hysteria or dementia præcox.

The author finds illustration of other Freudian doctrines in fairy tales. Special attention is devoted to "transposition upward," by which the lower physical processes are raised on to a higher plane, and the sexual organs may, for instance, become the mouth. Psycho-analysts have found this process common in the dreams of insane, and, indeed, of normal persons. Ricklin would thus interpret the large number of fairy tales in which women became pregnant through eating or drinking

some special food or liquids. With this "transposition upward" are associated infantile sexual theories, also illustrated by fairy tales; it has indeed been argued that such masking of sexual processes took its origin in the telling of fairy stories by women. Ricklin takes the orthodox Freudian view that this infantilism, whether in dreams or legends, is the expression of the censored wish of the unconscious.

The essay is of interest as an early attempt to study a new branch of comparative psychology, although, as such attempts are apt to be, it is often more suggestive than convincing. The author makes it quite clear, however, that fairy tales form as good material as dreams for the application of Freudian methods, and that indeed the material has considerable resemblance to dreams.

It must be said that the translation, though fluent and intelligible, is often careless and sometimes ungrammatical. H. E.

Part III.—Epitome of Current Literature.

1. Physiological Psychology.

The Constitution of Ideas and the Physiological Basis of Mental Processes
[*Constitution des idées et base physiologique des processus psychiques*].
(*Revue Philosophique*, No. 10, October, 1915.) Delage, Yves.

In this paper M. Delage formulates a theory by which he proposes to explain mental activity in terms of our present knowledge of the anatomy and physiology of the brain. Starting with the assumption that the cortical neurons are the organ of thought, he maintains that by analysing our ideas introspectively we shall find it possible to reduce them all, even the most abstract, to combinations of a relatively limited number of constituent elements. Each of these elements is supposed to be represented by a single neuron, and an idea is then defined as "the cerebral condition created by the entry into activity of the neurons or groups of neurons corresponding to the several elements that constitute it." From each neuron when actively functioning, dynamic influences radiate in all directions, affecting slightly those neurons which are in repose, more intensely such other neurons as are simultaneously active. Further, the conducting paths along which the more intense influences pass more frequently become thereby more permeable, so that ideas which have often occurred together, *i.e.*, whose correspondent groups of neurons have frequently been active simultaneously, tend to become associated and to call one another up. In this way it is possible to conceive part of the cerebral mechanism underlying the association of ideas and the processes of memory and recognition. To penetrate further into this mechanism, the author goes for an analogy to Lapique's theory of the chronaxial rhythm in muscle and nerve. Lapique showed experimentally that the muscles in different animal species and different sorts of muscle in the same animal differ in their electrical excitability, and that similar differences exist likewise in motor nerves; and on this fact he based the hypothesis that individual motor neurons also present specific modes of vibratory activity. Extending

this hypothesis to the psychic neurons, Delage assumes that the characteristic chronaxial rhythm of each neuron is preserved throughout all parts of the neuron up to its points of contact with the adjacent neurons. The readiness with which the dynamic influx from an active cell will pass this interneuronic barrier depends then on the relation of the respective rhythms of the several neurons; if two neurons have very similar rhythms, a feeble activity in one will suffice to stimulate the other; while, if their rhythms are widely different, this result will only follow from a very intense degree of excitement. It may be further supposed that neurons of different vibratory mode, when they have once been brought into simultaneous activity, will tend, during the time of their co-action, to approximate to one another in rhythm; and a persistence of this "parachronisation" in partial degree and localised to the portions of the protoplasmic processes where the two neurons are in contact, would explain that increased influence of the neurons on one another which is the physiological aspect of mental association.

According to this conception, the cortical neuron, instead of being functionally homogeneous throughout, preserves its primitive functional characteristics only in its central part and in such of its protoplasmic processes as are directed towards neurons with which it rarely co-operates: in its several other processes, directed towards neurons with which it is frequently in simultaneous activity, its vibratory rhythm is modified more and more as it approaches the interneuronic junction, so as to approximate to the rhythm prevailing on the other side of that junction.

M. Delage does not pretend to deal with the fundamental difficulties of a materialist psychology, but he has certainly produced an ingenious scheme for visualising the conceptions of such a doctrine.

W. C. SULLIVAN.

2. Psychology and Psychopathology.

The Systematic Observation of the Personality in its Relation to the Hygiene of Mind. (Psych. Rev., July, 1914.) Wells, F. L.

This is a study of method, although illustrated by five examples. The object is to suggest an approach to quantitative measurement of the essential factors in the mental adjustment of personality to its environment, with relation to the character of healthy mental reactions as distinguished from unhealthy ones. The human qualities to be considered are those that make for the individual's satisfaction with life, and his capacity to maintain a wholesome outlook on existence. The immediate task is to construct an outline of personality that shall correctly state the factors of importance to well-adjusted character, and make possible the direct comparison of personalities in quantitative terms. The scheme here formulated is to some extent based on those of Hoch and Amsden, of Heymans and Wiersma, Cattell, Davenport, etc. The method of notation recommended is similar to that advised for the Binet-Simon scale, and affords six steps from "above ordinary" down to "marked deficiency." There are fourteen different groups of questions in Wells's scheme, as follows: Intellectual Processes, Output of

Energy, Self-Assertion, Adaptability, General Habits of Work, Moral Sphere, Recreation Activities, General Cast of Mood, Attitude towards Self, Attitude towards Others, Reactions to Attitude towards Self and Others, Position towards Reality, Sexual Sphere, Balancing Factors. Some half-dozen questions are included under each of these headings.

Wells believes that many different types of personality may be clearly distinguished and formulated by this scheme. While not ignoring the importance of heredity he considers that the psychopathic personality probably owes its development as much to modifiable conditions in early childhood as to heredity and original nature, so that in any scheme of this kind due weight must be given to tendencies in relation to early unfavourable environmental conditions. The efficient balance of mental faculties with surrounding conditions is, he concludes, of transcending value for normal and pathological application, and the vital character of the dependent personal and social issues. "The constructive problem of psychology is mental adaptation."

HAVELOCK ELLIS.

The Practical Applications of Dreams [Portée Philosophique et Valeur Utilitaire du Rêve]. (Rev. Phil., Jan., 1916.) Delage, Y.

The veteran biologist, who admits that he is a great dreamer, and that his dreams are highly agreeable, discusses in this article (which is to form a chapter of a forthcoming book) certain practical applications of dreaming in relation to the race and the individual. He accepts to the full extent the alleged influence of dreams as a factor in primitive religious beliefs. They suggested, he believes, the ancient ideas of the "shades of the dead," and the more modern ideas concerning ghosts. Such ideas would have suggested the belief in immaterial spirits, independent of the body, and, with the aid of philosophical and religious conceptions, have led on to a faith in the immortality of the soul and in a future life. Delage recognises at the same time that there are many other grounds for such a faith.

In the constitution of various abnormal mental conditions, also, the author holds that dreams have been influential, as, for instance, vampirism. Dreams may also be invoked, especially when the same dream is frequently repeated, to explain morbid irresistible impulses in neuro-pathic subjects. Such dreams may also have a suggestive action, and help to account for epidemic delusions. By their auto-suggestion dreams extend beyond the region of psychology, and arouse grave problems of responsibility.

The question of the utility of dreams is not new, and has been very variously argued. Claparède holds that it is the function of dreams to act as a safety-valve, and to afford a harmless outlet to impulses which moral considerations force us to repress during waking life. Delage considers that this action of dreams is a rare exception, and that such dreams are more likely to exercise an unfavourable action on real life. He admits, however, that artists in every department (poets, musicians, painters, architects, etc.) may, like Leonardo da Vinci, derive inspirations of high value from dreams, although the inspirations thus derived always require much elaboration from waking intelligence. It

is probable that the part played by dreaming in artistic production is much underestimated.

The old notion of prophetic dreams is now rightly discredited. Delage believes, however, that there remains a class of prophetic dreams which is scientifically admissible, and that these dreams, even though rare, have a useful practical bearing. Many ideas occur to us in waking life which are immediately repressed because in some way or another they shock or wound our feelings. These repressed ideas may be clearly and brutally presented to us in dreams, and from such dreams we may be able to derive benefit. For instance, the cumulative trifling indications of a person's dishonesty, which in waking life we have at once put aside as unworthy suspicions, may be crudely formulated in a dream and lead to a desirable investigation. In other cases dreams may reveal some tendency of our own which we had in waking life never realised and faced. *In somno veritas*. Although there are no prophetic dreams in the ancient sense there are premonitory dreams which reveal dangers to which we risk succumbing. In dreams veils are torn away, and judgment, and opinions, resulting from unconscious cerebration, are clearly presented to us.

HAVELOCK ELLIS.

On the Diagnostic Value of Hallucinations. (Journ. Nerv. and Ment. Dis., Jan., 1915.) Stearns, A. W.

This study is based upon 500 cases to see, first, how many had hallucinations; next, the type of hallucination present; and, lastly, to determine whether there were any which seemed especially characteristic of any form of disease. The following conclusions are drawn:

(1) The presence of hallucinations is indispensable for the diagnosis of alcoholic hallucinosis or delirium tremens, but the type of hallucinations is not a proper criterion for differentiation between these diseases.

(2) The frequency of hallucinations in dementia præcox and their rarity in manic-depressive insanity has a bearing on differential diagnosis.

(3) The existence of true hallucinations in manic-depressive insanity is doubtful.

(4) Hallucinations seem to be rare in sane persons, even though they be psychopaths.

H. DEVINE.

On the Genesis and Meaning of Tics. (The Journal of Abnormal Psychology, Dec., 1915, and Jan., 1916.) Solomon, Meyer.

The earlier investigators of tics were responsible for their differentiation from such other conditions as chorea, the spasms, the stereotypies, myoclonias, and other allied conditions, thereby establishing the tics as a distinct clinical entity. Charcot recognised the psychic origin of the tic and established the fact that it was a mental disorder, a form of psycho-neurosis. It has thus two aspects—a psychic and a physical. The tic itself is the motor expression which relieves an antecedent, characteristic mental state of doubt, indecision, restlessness, tension, and discomfort. The tic movement is the symbol of a psychic defect, a degenerative, neuropathic basis which constitutes the soil for hysterical, neurasthenic and other reactions.

The usual conception of tics as laid down by the French school is that the movements are physiological acts, originally purposeful in character, but which have become apparently purposeless and meaningless. The tic is thus a pathological habit. More recently the Freudian school has endeavoured to explain the origin of tics, and to bring them into line with their theories of the other neuroses, including them in the group of obsessive neuroses. These theories, which give an ultimately sexual basis to tics, the writer is unable to agree with.

He points out that the different varieties of tic movements embrace the entire field of systematic, physiologically co-ordinated voluntary muscular activities. The mechanism for such movements is inherited, and all these movements in their original form had the single meaning of self-preservation. Their primary, biological significance is to be found in the phylogenetic, racial history of man. The present life history, with its varied experiences, act as stimuli to bring into activity these functions preserved in the organic structure of the nervous system. The pathogenesis of tics may thus be appreciated by viewing the subject from an evolutionary standpoint. In our adaptation to the varying experiences which we meet, we respond by one or more of several methods of reaction, from the simplest reflexes to written or printed language. The manner and degree of our response is dependent on our stage in evolution, and development of our senses, emotions, and intellect. Unable to find expression by means of writing or speech, we instinctively fall back on such expressions as are less refined, earlier acquired, and lower in the scale of evolution. The tic is one manner of response to certain external invitations or ideas. When the invitation is oft repeated there is a constant repetition of the defensive reaction, and eventually the movement may become so habitual that it is repeated with any mental stress, strain, or discomfort—it is the path of least resistance, the most immediate method of relief from mental struggle. The tic is thus, according to the writer, a regression or reversion to a type of reaction of an infantile, primitive sort, farther down in the scale of evolution and development. The tic is the emotional reaction of the individual. The ticquer attempts to meet certain situations of a disturbing nature, to compensate for his feelings of insufficiency, by means of his tic.

The tendency for the tic movements to spread is discussed by the writer, and is regarded as a form of over-compensation to make up for the conscious defect (the original tic movement) of which the subject is aware.

H. DEVINE.

3. Clinical Psychiatry.

The Albumen Content of the Spinal Fluid in its Relation to Disease Syndromes. (Journ. Nerv. and Ment. Dis., March, 1914.)
Myerson, A.

The usual routine examination of the spinal fluid is confined to the determination of the presence or absence of globulin, of an increase in the cellular content, and the Wassermann reaction. The writer considers that the presence or absence of an *increase* in the normal albumen con-

tent should be an essential part of the routine examination. The results obtained from his own researches in this direction are as follows:

(1) That in full-fledged general paralysis the relationship of albumen, globulin, cells and Wassermann is quite constantly one of parallelism, but that in the remissions the Wassermann reaction disappears first, the cell count and globulin increase diminish next, and the albumen most constantly remains at a high level of increase.

(2) In Korsakoff's disease, in certain cases of tumour, and in other organic diseases, there is a dissociation of albumen and globulin in this sense: that there is either marked increase of albumen without globulin, or that a marked increase of albumen, say 3 +, is accompanied by a globulin increase of, say, only 1 +.

The writer concludes from the facts obtained that the increase of albumen is a primitive reaction of the nervous system, and is the first as well as the most constant of the present known chemical and biological changes to appear in the spinal fluid.

H. DEVINE.

4. Asylum Reports.

Some English County and Borough Asylums.

Dorsetshire Asylum.—This is the last report of Dr. MacDonald, who has sought rest after a long and successful tenure of anxious office. We wish him long enjoyment of that rest. His reports have always been interesting to read, since he has been one of those who have thought it a duty to publish the results of his observations and thoughts on subjects of importance to the public.

Dr. MacDonald again adverts to the preponderance of mania over melancholia among the admissions. We, too, have from time to time drawn attention to the great variation in these proportions, and we venture again to point out that when the time comes for further systematic study of psychiatric ætiology there will never be found a more striking and possibly fruitful subject than this; in fact, we might say that no question more urgently calls for some attempt at scientific explanation than that of "why should such and such an area supply more excitement than depression, while its neighbour supplies the two conditions in exactly opposite ratio?" It is not a question that can be explained away by suggestion of error or of variation in classification, or of variation in scientific recognition. The two conditions are at the opposite poles of classification. Further, the differences in each asylum are apt to be very marked. We have taken at random reports of twelve county asylums, rejecting borough asylums, and we have extracted from each the returns of mania, *acute* and *recurrent*, and of melancholia, *acute* and *recurrent*. As it happens, seven of these have more mania than melancholia, *viz.*, Dorchester, Worcester, three Stafford asylums, Kent (Barming Heath), and Monmouth. The totals of these are 531 cases of mania and 258 of melancholia; the greatest disparity being shown at Lichfield, where the figures are 131 and 37 respectively. At the other five, *viz.*, E. Sussex, two Essex asylums, Northumberland, and the Kent (Chartham) Asylum, the preponderance is the other way,

the totals showing 215 cases of mania and 314 of melancholia. It will be observed that the proportions are very striking—in one set mania occurs twice as frequently as melancholia, while in the other set melancholia occurs in three cases to two presenting mania. The marked difference in the conditions taken together with this marked difference in proportion suggests that there is a wide and open field for ætiological inquiry.

Of early dementia Dr. MacDonald writes :

All quite young, and, to the inexperienced, a most hopeful class of patient, but the very reverse is the real truth. More often than not the parents are positive that the cause was some trifling incident or episode, which probably had no direct connection with the mental breakdown. Frequently lovable, often gifted, it is little else than the irony of fate that these young people should show signs of an early mental decadence, and that of a nature which gives but the faintest hope of ultimate improvement. At the present time we have a most interesting group on the female side at Herrison, and while in a few heredity may be the bed-rock, there are several in whose family histories no predisposition can be discovered. Because of having done well at school, and frequently engaged in trying work, it is hard for the parent to believe or think that the mental stability has given way. In connection with these most painful cases it is quite a legitimate question to ask—"If greater care had been exercised during school life and afterwards, and a doubt placed upon the preternatural quickness, would the ultimate breakdown have been averted?" When one listens to the histories given in many of these cases, the conviction is borne home that it was unwise to have allowed the pressure of school life to follow an ordinary course, and much more so to have attempted difficult work or a trying professional career.

Essex County.—The combined reports of Brentwood and Colchester Asylums form quite an important volume. Both these asylums were at the time of report suffering from considerable inconvenience, the one by the removal of the old temporary buildings, which have become purposeless now that the second asylum at Severalls has been opened ; while the latter asylum is shorn of its contemplated functions by all the buildings, other than the main asylum, having been taken over by the War Office for the use of recruits undergoing training. It is satisfactory to read that the behaviour of the troops has been exemplary, though the sanitary arrangements incidental to this foreign population have left much to be desired. In addition a heavy proportion of staff have gone to the colours, so that the management of these complicated machines has been a very anxious task. It speaks well for the soundness and stability of our system of lunacy treatment that no untoward incidents out of the ordinary course have arisen. Dr. Turner's statutory report is but a dry statement of figures and facts, but on the other hand he supplies a full and most valuable pathological report. We do not remember to have come across any such document before, giving such an amount of *post-mortem* evidences. It is one thing to give a series of interesting and instructive findings after death, it is quite another to furnish a nearly exhaustive statement of the condition of the various organs in nearly 280 subjects. Such a report is an important gift to the science of to-morrow, all the more valuable in this case from the known ability and conscientiousness of its sponsor.

Sclerosis of *cornua ammonis* was found in 20 *per cent.* of the male and 18 *per cent.* of the female epileptic cases which were examined. Some considerable tabulation is given of the measurements of the *sulcus*

lunatus and stripe of Gennari, following a previous report. The conclusions derived from this appear to be rather indefinite for the present. The occurrence and seat of local atrophies of the convolutions, and of softening due to hæmorrhage and emboli, are interesting to read. The parietal in the former and the lenticular nucleus in the latter being the most frequent sites. The basal vessels were atheromatous (or calcareous) in 31·4 *per cent.* of 36 males, and in 29·6 of 48 female cases. Subdural hæmorrhage, films, or cysts were found in 7 *per cent.* of the males and 5·5 of the females. Tumours existed in 4·4 and 1·2 *per cent.* respectively. Several other intracranial conditions have light thrown on them by the *post-mortem* results.

The aorta was found affected in a large proportion of cases, being atheromatous in 68 *per cent.* of the males and 45 *per cent.* of the females, while it was calcareous in 4 males and 16 females. The mitral valves, too, were affected in 18 *per cent.* of the males and 16·2 of the females, while the percentages for the aortic valves were 11·3 and 4·0 respectively. When we come to the liver we are met with figures which make one rather suspicious of the contention that this organ is particularly favoured in the insane. Among the 115 males examined *post-mortem* it appeared to the naked eye to be more or less natural in 86, nutmeg in 15, fatty in 8, cirrhotic in 4, one of the latter being typically hobnailed. Among 162 females the numbers were 95 natural, 47 fatty, cirrhotic 9, nutmeg 8—all to the naked eye. But in both sexes the microscope told a different tale. In 23 male cases examined microscopically some degree of cirrhosis (generally slight) was found in 6. In 42 female cases cirrhosis, often advanced, was discovered in 19 cases, or 43 *per cent.* Possibly the variation between these demonstrated facts and the generally accepted belief in the rarity of cirrhosis of the liver in asylums will partly depend on the proportions of cases in which the naked eye appearances have been corrected microscopically; but possibly also it may depend on the fact that out of a total of 317 fatal cases 22 *per cent.* were only in residence from a few days to less than a month. In other words, much that was found in these cases belonged to the ante-asylum life of the patients. Gall-stones were found in 9 *per cent.* of the men and 19 *per cent.* of the females. The other organs are dealt with, but presented nothing noteworthy from the asylum point of view.

Both asylums publish the names of the members of the staff who have gone on service.

Gateshead Borough.—This is the first report of the asylum, which is a recent addition to the growing list of English public institutions. The general administration seems to have settled down quickly and satisfactorily to the usual lines. We are glad to note that the full scheme of the Association's Statistical Tables has been adopted. We note that with thirteen deaths only three *post-mortem* examinations were made, in consequence of the friends' refusal to allow others. In view of the immense amount of trouble and expense which the relatives are personally spared by asylum care, these relatives should consider it a matter of honour to repay some little amount by a ready consent to this examination, which, after all, is the only reward that can be con-

tributed by the patient for the scientific skill bestowed on his care and comfort.

The following particulars of a new asylum may be interesting. It is built to accommodate 200 patients of each sex, with preparation for another 100 beds in the future, making 500 in all. The designers were Messrs. Hine and Pegg. Each section is complete in itself, comprising day room, dormitory, attendants' room, scullery, kitchen, boot room, store rooms, sanitary spurs, bath lavatories and W.C.'s. Single rooms, including padded and half-padded rooms, are in proportion of 1 to 6. Each infirmary has a *solarium* 68 × 14 ft. attached to it. Bicycle rooms are provided on each side for the staff. The engineering plant is quite advanced. Mechanical underfeed stokers, and a Green's economiser serve to economise the coal consumption. Exhaust steam is used again in the heating system. The latter must be very active and efficient, as it is circulated by steam-driven pumps. The circulation can be controlled in the pumping chamber, and, as thermometers are placed on both flow and return pipes, the engineer can satisfy himself at once whether the circulation is being carried on efficiently throughout the asylum. At the same time each block can regulate its own temperature. The subways for the pipes can be walked through. The system of distribution is excellent. The mains are carried up to the roof space in each block, and these descend to the radiators in the two floors. These mains are in three circuits—one for the day room, one for the dormitories, and another for the single rooms. Thus at night the day room circuit is shut off, by day the dormitories are shut off, and the single rooms can be controlled as may be found necessary. The wards are heated by under-window radiators, air inlets being behind them, regulated by internal levers. More than three miles of heating mains are required. The chapel is heated by Haden's combined warm air and hot water apparatus, the radiators only being provided in the entrance and lobbies. The hot water system for laundry, baths, sinks, etc., is conducted on much the same system as the heating plant, two calorifiers being provided—one for live steam, the other for exhaust steam. The former is only used in case of emergency, as for ordinary running exhaust steam is sufficient.

Dent's electric clock system is used, the clocks known as "Pulsynetic" being synchronised.

Evidently much thought has been given to all these points, and it will be interesting to note in a succeeding report how far success has attended the various installations.

Dr. Tighe is to be congratulated on having a well-found machine to supervise.

Kent, Barming Heath.—Dr. Wolseley Lewis opens his report with these remarks :

The great war, which has turned the whole of Europe upside down, will no doubt be reflected in the statistics of the asylum. The immediate effect will probably be an increased number of admissions; for we have those conditions of mental and physical stress which are prominent factors in the causation of insanity; indeed we have already admitted Belgian refugees, soldiers from the front, and women whose state is due to loss of their relatives in the war. At the same time the number of our discharges is likely to be curtailed, as the circum-

stances to which we can send our convalescents are less favourable than in times of peace. The immense sacrifice of blood and treasure entailed by the war, and the altered social conditions likely to obtain afterwards, are more remote factors whose influence on the statistics of mental disease in the future it is hard to foresee. In the meantime, a great crisis like that through which the nation is now passing has its effect on the mind of the people as a whole, and also tinges the mental state of many of our patients, who develop delusions such as that "they possess a special power to stop the war," or that "the Germans are after them to kill them."

We note that recreation and mess-rooms with separate kitchen for the staff have been provided. These are run on very much the same lines as a club, and so successfully as to invite visits of inspection by the authorities of London and other areas.

In a survey of the results of the last quinquennium it is related that the admission-rate has decreased considerably, especially among the men. This is probably to be accounted for by the request of the Committee in late years that the Guardians will only send to the asylum male cases that cannot be treated in the workhouses. The death-rate, which can be affected by no such administrative procedure, has made the very considerable drop from 12.63 to 8.8. This Dr. Wolseley Lewis attributes to better hygiene, and to improved nursing. As further proof of his point he states that while the age of death in the period has risen from 51 to 53, the death-rate from phthisis has dropped from 26 to 15 *per cent.* At *Chartham* the work has been increased by the billeting of two batteries of the R.F.A. Dr. Fitzgerald was glad to offer the advantages possessed by an asylum in the matter of bathing, cooking, laundry, etc., and the asylum staff endeavoured to make the billet a pleasant one. On the other hand, much interest was found in the working and the training of the patients. The nurses were of much use in supplying several hospital wards in Canterbury with bed jackets and other garments for the wounded soldiers. The male staff in the kitchen was depleted by the war, and for some months all the cooking was done by the nurses, who seem to have risen to the occasion. The work is now done by female cooks. A house is to be provided for the Senior Assistant Medical Officer, so that he can marry.

Metropolitan Asylums Board.—The Committee, like other bodies, has to report the loss of a large portion of the staff, about 1,070 having been mobilised or volunteered. This tells hard on Darenth, especially where the work has been seriously hindered by the withdrawal of trade instructors. The terms given to all who have left for the war appear to be most generous. The attitude of the managers with respect to mental deficiency appears all round to be liberal and sympathetic. The Committee states its intention to foster research in connection with mental disease, and specially in Darenth, on the recommendation of Dr. Sherlock, to establish a laboratory of experimental psychology. It appears to us that a more valuable field for such work could not be found. The industrial work at this institution, as well as that at Bridge, has been kept up on the old lines, but has been seriously affected, not only by the shortage in staff mentioned above, but by the great increase in the price of raw materials. In relation to the value and earning capacity of mental deficients, Dr. Sherlock tabulates the result of extended obser-

vation of some of his patients at Darenth. He effectually explodes the commonly prevalent idea that a deficient can be made by training into a self-supporting worker. He assumes for the purpose, and rightly too, that the work at Darenth offers the best opportunity for settling the question. He points out that the deficient cannot make up the normal number of hours in a week—the effective time spent by patients only amounting to thirty-five hours. To attain even this there is required an expensive supervision. At the best the work does not equal that of the normal labourer, and in consequence it is not easy to find a favourable market, and so on.

The following table shows the estimated value of work done per week by a stated number of patients in certain trades :

		Feeble-minded.	Imbeciles.
Males	{ Bootmaking	48 6/3 .	44 5/8
	{ Tailoring	42 5/4 .	36 6/-
Females	{ Needlework	82 1/4 .	232 1/8
	{ Machine and other knitting	18 4/6 .	6 7/1

It must be admitted, on the above figures, that such labour only helps to lessen cost, and cannot do so much as the public were led to hope for when the Mental Deficiency Act was first introduced to the notice of Parliament. There is another point of interest in these figures. It will be seen that in all but the first trade—bootmaking—the average imbecile showed himself to be a better workman than the average feeble-minded person, in spite of the relative gradations of educability to be found in the definitions of these states of deficiency, as laid down in the Act.

Apart from its work among the intellectual wreckage which is thrown on its hands, the Board gives evidence of the splendid organisation that characterises its functions. The declaration of war found it liable to take charge at short notice of aliens to the number of 363. Then the irruption of Germany into Belgium brought a large number of war refugees. On September 4th, 1914, the Local Government Board called on the Board to provide for them. In twenty-four hours arrangements were made for the utilisation of the Crystal Palace, which the Board was led to believe would be available. But on proceeding to make arrangements for opening it the Board's representative found that the Admiralty had forestalled them. Accommodation, however, was found in the next few days, and on September 10th, six days from the first call, the Alexandra Palace was secured and opened. The average daily admission was nearly 500; but on one occasion 1,200 arrived between 1.30 and 3.30 a.m., and on another 1,900 were received in the course of a night. The Earl's Court Exhibition premises were secured, and on October 15th the place was cleared of show cases, booths, and the general paraphernalia of an Earl's Court Exhibition, and the staff and equipment were collected in time for the admission of 1,400 refugees in the evening. Altogether, from the declaration of war to the end of June, 1915, 94,005 refugees were dealt with. The Board may well be congratulated on this wonderful work.

Staffordshire.—At *Stafford* it is recorded that a contract has been taken for building a house for the Senior Assistant Medical Officer,

while at *Brentwood* the Nurses' Home and new attendants' houses have been opened, to the great contentment of the persons to be accommodated.

At *Cheddleton* remark is made on the two chief effects of the war—the one the increase in the number of the patients caused by the transference of several asylums to the War Office; the other the decimation of the male staff. The latter Dr. Menzies could to some extent remedy, as the pottery trade was slack, and he could get temporary attendants from that source. With regard to the former, he gives warning that penalties will follow overcrowding—recrudescence of tuberculosis, dysentery, etc. It was found to be very desirable to give the married attendants cash instead of board. This has become so popular that it is likely to continue after the war.

East Sussex County.—At Hellingly the Committee decided to erect four verandahs to hold fifty patients between them, in the hope that the beds contained therein would be allowed to be added to the official accommodation. But to this the Commissioners would not assent, and there has been no progress in the matter. While we at once admit that there is much to be said against increasing the total reception power of an institution by adding beds at a cheaper rate, still we cannot see by what process of reasoning it is ordained that no credit whatever shall be given for the extra accommodation. If these extra beds are simply to be counted as opportunities for applying latter-day treatment, the position of a Committee recommending to their authority capital expense for what some of the authority may consider to be a new-fangled fad, becomes very difficult in these days. But, to those who know, verandahs have long passed the fad stage—they have become part and parcel of advanced treatment, and they will soon become essentials in first-class asylums. In any case they are sure to be used for recent or sick patients, and thus relieve pressure on official space. It would be as justifiable to refuse the reckoning of single rooms in estimating accommodation.

In dealing with heredity Dr. Taylor found that of the congenital cases there was insane heredity in 69 *per cent.* of those whose history could be elucidated. On the other hand, he found that in only 1 *per cent.* of all histories, whether of congenital or acquired nature, was there a combined heredity of insanity and alcohol.

The Committee have lately increased the remuneration of those nurses and attendants who obtain the Association Nursing Certificate. This now is £3 for the ordinary pass, £4 for those who pass with distinction, and £1 for passing the preliminary. The latter half-way encouragement is a happy idea. The whole scale is generous, and doubtless the generosity will be set off by the increased efficiency and good will of the beneficiaries.

A large amount of white blood-count has been carried out by the pathologist, Dr. Walker. The comparison of about twenty cases of general paralysis of the insane with a similar number of various other forms of insanity is highly instructive. For diagnostic purposes he summarises his observations thus:

FIRSTLY.—A general paralytic is in some cases very hard to diagnose in an early remission, hence a differential white count which shows the presence of at least

40 *per cent.* of lymphocytes should be of value, especially if mast cells are also present.

SECONDLY.—A total white count, in cases of manic-depressive and confusional insanity, which progressively shows an increase of white cells, points to a good prognosis and an ultimate recovery, while a slight polynucleosis over a long period points to chronicity.

THIRDLY.—As regards differential diagnosis, difficulty often arises as to whether patients showing symptoms of mania or confusional insanity belong to those forms of disease, or are actively progressing general paralytics, especially where there is no history of syphilis and bodily symptoms are absent. If a white count is done at intervals in these cases a large polynucleosis, which increases as the patient grows worse, points to general paralysis, while a polynucleosis of lesser degree, which increases as a patient improves with no noticeable increase in lymphocytes, points to manic-depressive or confusional insanity.

Also as general paralytics make a temporary improvement their total white counts, although exhibiting a slight polynucleosis, decreases and exhibits a marked lymphocytosis.

Some Registered Hospitals.

Barnwood.—The Committee note that on the outbreak of war they placed one of their dependencies at the disposal of the authorities for the gratuitous maintenance and treatment of private soldiers, and another for the reception of officers. The offer was not accepted. Dr. Soutar reports that the number of male applications had fallen off remarkably for no known reason. He had to refuse one or two on account of shortage of staff. In place of an average admission rate of thirty-five of both sexes, only nineteen were admitted.

The Retreat, York.—The war not only made a call on the energy and unselfishness of those of the staff who were left, but it produced much evidence of right feeling. A simplification of diet was readily accepted, and the Secretary was authorised to deduct twopence per pound from salaries as a contribution to the York Citizens' Fund. Then the nurses devoted their spare time to caring for the numerous Belgian refugees taken charge of at the Friends' Meeting House, finding night nurses for the Distribution Home, washing the babies, etc. Dr. Bedford Pierce records with sincere regret that the cost of maintenance had reached such a point of increase that it was found necessary to raise the terms. He was gratified to find that in almost every case the additional amount suggested was willingly paid. But, in spite of this extra income, we regret to see that the receipts were slightly below the outgoings. The bombardment of Scarborough was a terrifying experience for the inmates of Throxenby Hall, the seaside outlet of the Retreat; but no ill results followed. Dr. Pierce truly states a fact that has to be taken into account when considering fitness for parole or special indulgence—the disease sometimes seems to destroy all sense of honour. As an instance, a nurse volunteered to take a nice quiet patient for a cycle ride. But the nice quiet patient was better mounted and a better rider than the nurse, and going up a hill she outrode her companion, being subsequently found wandering on the railway.

Some Scottish Royal Hospitals.

Aberdeen.—Dr. Reid, writing in January, 1915, had not been able to trace any ætiological connection between the war and the mental dis-

order in his admissions. But he thinks that it has served to accentuate any existing highly strung tendency, and to produce in some a self-centred, apprehensive, depressed, fanciful, sleepless and fatigued condition akin to neurasthenia. We observe that Dr. Reid returns general paralysis as a cause in all the cases admitted as suffering from that disease. Some day, no doubt, syphilis will be regarded as the isomer of general paralysis, and then will be returned as the cause, and thus one will not have to reflect how a given factor can be cause as well as result. We note that he adds some useful tables which are not usually found in conjunction with the former official statistical scheme of the Association.

Edinburgh, Morningside.—The Committee, in their report, state that when the Mental Deficiency (Scotland) Act was passed it occurred to them that they might provide some of the accommodation that was being sought for by other responsible bodies. The General Board of Control, however, pointed out the section in the Act which forbids the mixing up in any way of the two classes—the insane and the deficient. There is a good deal to be said on each side. We take it that while it would certainly be harmful if the best class of deficient were treated on the same premises as the insane, some definite connection between the institutions containing the two classes is very desirable, seeing that the line is very narrow between some of the best class of the insane and some of the most active cases of mental deficiency. The incidence of the war affects this question deeply. It is idle to hope that much satisfactory accommodation can be provided for the deficient for a long time to come, while existing institutions might be of great service in this relation if the law were not so precise. Not being able to progress in this direction the Managers offered to take in soldiers and sailors returning from the front suffering from mental collapse, but the authorities being reluctant to send such cases to an asylum, this kind offer, though accepted, has not been made use of.

In discussing ætiology Dr. Robertson is able to reproduce from an admission statement a new name for an old friend. One case was attributed to “over-religiosity.” The mental stress cases, which have formed a steady average of 11 *per cent.* of the total admissions, suddenly rose to 18.7, the increase being chiefly in the female sex. In the others Dr. Robertson is chary of accepting the war as a scientific element in direct causation of insanity. Many of the cases admitted were attributed to the war, but on analysis it was found to be a very indirect cause in most cases. On the other hand, Dr. Robertson has come to look on the war as having been a sort of mental tonic, and in support of this idea he says that the admissions in Scotland have fallen slightly below the average since the war began.

With regard to alcohol, Dr. Robertson adverts to the good work done by the “field worker,” Dr. Ritchie, in investigating the cases admitted with this ætiology. The number dealt with was small, but in each case alcoholism was proved in one or other, or both, of the parents. In each case the men earned good wages; in one case the young man made enough to live comfortably and to do himself well with drink. A rise of 10s. per week was devoted to extra alcohol, with the result of bringing

on incurable insanity. It is pointed out that in these cases each drifted away from church connections, and from every influence of an educational or elevating nature. To our mind this is the most serious pathological change of all. As in most insanities natural affection is the first normal attribute to go, so in this toxic affection self-respect is the first surrender, associated with the carelessness for the respect of others. Judges and others who denounce the evils of alcohol, as shown in the production of crimes of violence, do not, as a rule, put sufficient stress on its slow sapping of mental fibre leading to the commission of meanness and dishonesty, through the destruction of protective principles. Among the many interesting examples of the application of the "war idea" to existent insanity, Dr. Robertson instances one woman who is acquainted with "Kitchener" and "Smith Dorien," and gets messages by "wireless" from them. She will "ring up" and give one the latest news from the front at any time. What a valuable asset she would be to the new "Opposition" which it is proposed to establish for the edification of the Government.

Dr. Ritchie, the "field worker," whose appointment we noted last year, is proving to be a success. It is his duty to examine *in loco* into the ætiological factors of the individual admissions. We have in these columns, on more than one occasion, pressed for the carrying out of this most useful form of scientific research. Obviously if ætiology is worth anything in the estimation of pathology, it should be probed thoroughly, consistently, and meticulously. As an example of the benefits of such research we append the following extract :

"Dr. Ritchie found that of fifty-three consecutive admissions from Leith, practically a third had no church connection, and many others did not even know the name of their clergyman. The loss of this influence for good, and for sobriety in the lives of these persons, was a most serious one. It is one of many points where the efforts and ministry of the physician and the clergyman touch and even overlap, and there appears to be an opening here for something more to be done.

"When these patients are discharged they are placed in communication with a clergyman, as a species of 'after-care,' a duty which is always willingly undertaken, and at least one patient attributes her complete reformation to the visits of the minister and the church worker."

Glasgow: Gartnavel.—Dr. Yellowlees, in moving at the Annual Meeting a vote of thanks to Dr. Oswald, recorded the fact that for nearly four weeks Dr. Oswald ran the whole asylum himself, without any medical assistance and with a greatly reduced staff. Very few officers have had more real anxiety and sheer hard work thrown on them by the war than those connected with asylums. It is undoubtedly the case that the subordinate staff has risen to the occasion, and we cannot but think that some sense of patriotism has led the more reasonable patients to give what help they could, not only by their own self-control, but also by guiding their less fortunate companions in the right way as far as possible.

Dr. Oswald shares the opinion that the war has had no influence in causing mental breakdown, though in numerous instances it has served to colour the symptoms. On the other hand, though he thinks that an increase of nervous trouble may be reasonably anticipated, he recognises that the national need has raised the national mental tone.

Montrose.—Here, too, the war has caused much trouble to Dr. Shaw, who has succeeded Dr. Havelock as Medical Superintendent. He had been without medical assistance for a considerable time, and has little prospect of securing any. Among the 143 admissions no less than three had serious self-inflicted cut-throat injuries. Speaking of the essential need for fostering self-control in early years, as a means of obviating hereditary tendency, Dr. Shaw says that there seems to have been in recent years a tendency to minimise parental responsibility and authority. He hopes that the present national emergency may lead to increased self-control in the individual, and a greater regard for discipline in the community.

The Hospital has received ninety extra patients from Bangour on the latter being taken over by the military authorities.

Some Scottish District Asylums.

Govan.—Dr. Macdonald states that so far from the war helping to increase admissions, these in his case have been below the average. At the same time it has to be remembered that cases of mental disturbance occurring in the hospitals are treated in special military hospitals, and are thus drawn off from the admissions into the ordinary asylums. Though among the admissions some war ætiology could be assigned, no case owed its origin directly to this factor. He writes :

"No doubt it is amongst the soldiers and sailors in the fighting lines that the excessive mental strain will claim most victims. *It says much for the mental stability of the race that our asylums have not already been filled to overcrowding by demented warriors from our army and navy.* There is some satisfaction to be found in that reflection, especially in view of all that has been written and said in certain quarters about the mental and physical deterioration of our people. The pity of it lies in the fact that it is the fitter amongst us who have to sacrifice themselves in the struggle; and, when the war is over, the ratio of unfit to fit will be greater than before. Many will lay particular stress on this calamity. Others will seek to draw comfort from the belief, or rather the hope, that war cannot be an unmixt curse; that it must be compensated to some extent by consequent and subsequent revivifying influences—the quickening of the moral and spiritual pulse of the nation."

Inverness.—Dr. Mackenzie admitted 19 cases from the naval and military depôts and training camps in the district. All parts of the kingdom were represented. Of these, 12 were discharged recovered after an average residence of less than seven weeks, 4 were transferred to other asylums, 1 sent out on probation, 1 about to be discharged recovered, and 1 sent to the care of his parents. A fuller report of the nature of these active cases would be very interesting.

The Twenty-first Annual Report on the Government Hospital for the Insane at Abussia, Cairo, and the Fourth Annual Report on the Asylum at Khanka.

In drawing special attention to this Report, I feel bound to speak of it as a model one, and I have taken the liberty of adding, as an introduction to it, a letter from Dr. Warnock which appeals to

me as showing evidence of his unusual power for work and also for adapting himself to most trying conditions.

Those of us who have visited Abassia and spent some days there more fully recognise the gigantic energy displayed. The Report itself gives, in concise terms, all the information which can be desired.

First, the work has had to be done by a staff reduced in numbers in consequence of the war, and the work has been increased by requirements for special treatment of British soldiers who become insane.

Doctor (or I daresay he is a major or colonel) Warnock, in his letter, points out the most interesting points in the Report and gives many elaborate tables involving a great deal of work, which I shall not refer to, as they have only local interest.

During Dr. Warnock's administration 14,705 patients have been treated in the asylum, with 3,070 recoveries and 2,277 deaths; 1,250 examinations have been made of persons accused of crimes, 200 Government employes have been examined, and 100 prisoners have been examined and reported upon. Large sums have been collected from patients' estates, and very large sums have been spent in developing the old and building the new asylum.

The numbers in residence have risen from 440 to 2,054. The area appropriated for the treatment has grown from two and a half acres to 700. The staff has risen from 75 to 545 persons.

Nineteen deaths occurred from accident, homicide, and suicide. During the year Dr. Warnock was appointed consultant to the British Army in Egypt, and he arranged the subdirector's house as a special hospital for these military cases. One hundred such cases were treated—56 British, 22 Australian, 2 New Zealand, 17 Indian, and various, 3.

Of these 36 were melancholic and 12 maniacal. Alcoholism produced 10, general paralysis only 5. The Indians supplied the largest proportion of melancholiacs. Of the 100, active service, shock, or causes of physical exhaustion, such as dysentery, produced 18, alcohol 10. Only one death, and that from septicæmia, occurred.

Part II of the Report gives more fully the statistics, and what may be called the domestic economy of the asylums. These are very interesting for superintendents, but one cannot include them in this short review. Full returns are made of the very complete electric service which is much used in both asylums. Many patients were admitted suffering from injuries produced in struggles with friends or with the civil authorities. Sixteen employees suffered injuries from aggressive patients.

Dr. Warnock, with natural pride, refers to the reception of voluntary boarders, and to the fact that patients are decently brought ("escorted") to the asylum.

With all the medical and administrative work, Dr. Warnock gave thirteen lectures to students of the School of Medicine, and last April demonstrated interesting cases to the Law students. This is a splendid innovation.

A very novel and important part of Dr. Warnock's work is connected with crime. He now receives the criminal lunatics, and besides this

doubtful cases of accused persons are referred to him, as well as a number of convicts, many of whom are malingerers. A table is given of the insanity found in thirty-three male prisoners. Pellagra produced five homicidal prisoners, and one of the nine women was convicted of murder and was pellagrous.

The various medical tables are of particular interest. The largest number of admissions was in the summer months and the fewest in November.

Of 586 male patients admitted, hasheesh was given as the cause of 46 cases, pellagra 75, general paralysis 46.

There are tables giving the race and residence of patients, and these show the confusing variety of languages and habits which have to be dealt with.

The death rate was 7.5 *per cent.* on total number resident ; this includes deaths from typhus and typhoid fevers and dysentery. Bilharzia worms were found in sixteen cases, and ankylostoma in four others.

Most encouraging work was carried on in the laboratory, and the brains and other organs of ten pellagrous cases were collected and prepared for examination.

The importance of syphilis in the causation of mental disease is now acknowledged, and Dr. Warnock was able to get Wassermann tests carried out by the Public Health Authorities, and interesting results are tabulated. The percentage of positive reactions in general paralytics was 68 ; this seems to be rather below our experiences.

With pellagra there were 11 *per cent.* positive, and with the other various forms of insanity 23 ; this appears high.

Details of treatment are given, and Dr. Warnock is a strong advocate of out-of-door treatment, and prefers some forms of restraint to the chemical control by drugs.

And here we must conclude the report on Abassia.

The new asylum at Khanka is still in a developing stage. Dr. Dudgeon recognises to the full the importance of outdoor occupation, and his report points out clearly the developing work he is carrying out.

Here, too, the number of the patients exceeds the accommodation.

The asylum will ultimately be adapted for 2,000 patients.

The communication with Cairo is unsatisfactory, and the Director is much cut off from European society.

His work is interesting, and his practical ability is well exercised in his work.

G. H. S.

ABASSIA, CAIRO,
March 16th, 1916.

DEAR SIR GEORGE,—I enclose my "hardy annual," the twenty-first. I can hardly believe I have done twenty-one years' "hard," seven days a week, and never a week-end's rest. However, I don't complain of the hard work ; it's the continual worry and "struggle against adverse circumstances," as the old Commissioners' reports put it. However, the twenty-one years are completed, and, like old Horace, I would sing "exegi

monumentum aere perennius," etc., but I know it's not "aere perennius," but only a bubble on the advancing wave of civilisation. Well, it's some satisfaction to have got through with it, with all its failures and loose ends. Look at p. 6 and realise what a *mass* of work has been got through. *Quantity*, if not quality! Abassia Asylum admits nearly double as many cases as any other asylum in the British Empire—1,036 a year against Winson Green Asylum at Birmingham 577, the nearest approach I know; and our cases are all so violent! And as though one hadn't enough work, I was bound to take up the care of the insane soldiers in Egypt, and make a good home for them; their statistics (p. 7) are interesting. For about six weeks, December, 1915, and January, 1916, the work was the heaviest I have ever known, from 9 a.m. to midnight, seven days a week, with but one and a half hours for meals. Luckily a lull came, but the overwork made one feel older. The summer of 1915 was very trying; very hot, and there was an unprecedented inrush of new cases, nearly all in camisoles and acutely maniacal, or dying, or infected with fever; twenty new cases admitted in twenty-four hours! One hundred and twenty new cases a month, and an epidemic of typhoid and typhus fever on the top of that, affecting both patients and staff. No subdirector to help me; my best native assistant away at Khanka to replace Dr. Dudgon on three and a half months' leave. Still, we got through somehow; but after eighteen months' work without a single day or even night off duty, I feel inclined to kick. The Report for 1915 is not exhaustive. No time for writing reports nowadays. The temperature chart is omitted this year. Remember, all the administrative work is done by one man here; no asylum committee as in England to make contracts, pay cheques, decide administrative questions, vote money, etc.; every bill paid has to be signed by me. All the work passes through one narrow funnel. Half of my work would be done in England by the asylum committee. The result is one lives in a "rush." "Life's fitful fever" is not merely a poetical expression here. At times one asks: "Is it worth it all?" Of course it is. The greatest pleasure in life is the overcoming of obstacles, and there are plenty here! And now for the Report:

On p. 4, note that the combined lunatic admission-rate of Abassia Asylum and the local general hospitals all over the country is falling—1,087 in 1915, 1,227 in 1914, 1,325 in 1913. So it looks as though we had got most of the wandering dangerous lunatics under care, and as though the extension of asylum accommodation to 2,000 beds was having some result.

The recoveries (245) are low, because the improving cases have to be prematurely discharged.

Pellagra is the chief reason for our high death-rate, but syphilis (general paralysis) helps.

As stated on p. 5, Khanka Asylum should now receive about half the total male lunatics of the country; but until a road is made to it from Cairo we can't use it thus.

The cost of maintenance of a pauper patient is at Abassia £25 10s. (p. 12), at Khanka £24 7s. (p. 34).

[Khanka takes the quiet cases and Abassia has all the acute destructive cases and all the women and criminals.]

On p. 11 a welcome improvement is mentioned, *viz.*, the installation of complete water-carried sewage drainage at Abassia.

Note: On p. 14 we admit voluntary patients, yet a county asylum in England is not allowed to!

The paragraph marked "escort" on p. 14, is a sign of civilisation after many years. Patients now sent by train are separated from the ordinary passengers.

The criminal work (p. 15) is very laborious, and entails the reading of the long Arabic dossiers of each case, and then prolonged cross-examinations of the accused. Malingering prisoners are also a great tax on one's time.

On p. 20 note the steady influx of new cases, 86 per month all the year round, and the continual discharges (40 a month), and the death on every alternate day.

Page 21, note that hasheesh insanity and general paralysis are now level—46 per annum for each disease among the males. Twenty-one years ago it was very different—much hasheesh and apparently very little general paralysis.

Page 21, Races: Note the lonely Chinaman! His first appearance in my reports.

Pages 22 and 24: Pellagra caused 44 deaths; general paralysis 30.

Page 23, Table VIII, shows that our cases come mainly from the big towns. Country lunatics stay at home mostly.

Page 24, Table IX: I have come to the belief that real epilepsy is only possible in the neuropath, and that adolescent insanity (dementia præcox) is always a hereditary affection, showing itself by mal-development chiefly of the brain, but often of the bones, etc.

The huge total of "causes unknown" (347) vitiates all conclusions to be drawn from this table.

Page 25: In spite of overwork, heat, and all, we did forty-four *post-mortems*.

To fill up our cup we developed a case of smallpox, which meant general re-vaccination and quarantine.

Page 26: At length we got some work done in the laboratory by a most decent Egyptian doctor, who has now gone to Cambridge. He did Wassermann test, Widal test, blood-films, etc., and was a great asset.

The tables on pages 26 and 28 shows results of systematic Wassermann tests done at the Department of Public Health Laboratory; in 1916 *every case admitted* is being so tested.

Page 27: *Seclusion* is still high, and to lessen it I require better attendants and a cooler climate, both impossibilities.

Artificial feeding.—One case for eight years continually.

Hypnotics.—Very high; but why is not a record of hypnotics required in asylums generally—"chemical restraint"—as there is of mechanical restraint? I have heard that sulphonal is used to an enormous extent in some asylums (a drug I allow only sparingly here). It may be that seclusion has been eliminated by perhaps worse methods!

Page 28: *Mechanical restraint*.—I think this is more humane in cases of broken arms, infectious wounds, etc., than fighting with an attendant, or being stupefied with sulphonal. Mechanical restraint is a sort of bogie-man in England.

Wet-pack.—Why is this given up in England? It is a great sedative in furious cases.

Suicides.—The patient had swallowed all these things *before* admission; he vomited the spoon and passed the clothes-peg and nail *per rectum*.

Well, so much about reports! I often think of printing my views on a number of lunacy matters, and when I retire from this pandemonium I may do so. You may be interested to hear how experience in this isolated place has moulded the views of a medico-psychologist.

Here is a sample:

(1) There will never be harmony between the law (or the lawyer) and lunacy doctors until they meet on the same mental platform. They can only be made to meet by both sides passing through the same training in lunacy. Thus all lawyers should attend lunacy lectures and asylum wards for at least a year before qualification (I believe lectures are given to lawyers at Königsburg Asylum). The whole position is open to ridicule. We should push until we get lawyers educated in lunacy, and then we'll get a proper lunacy law in England instead of the existing repressive and insulting law. Thank God, there's no such law in Egypt. The lawyers have all the power nowadays, so let us educate our masters. That is the *first* thing necessary.

(2) "Lucid intervals." I think all the legal talk on this subject is trash and should be cut out of legal text-books. Lawyers think a chronic dement *may* be insane at any moment; indeed, often is. In *my* experience, lucid intervals are almost like Icelandic snakes.

(3) The examination of accused lunatics at police-courts and prisons in England appears to be often done by doctors who have no lunacy experience. In backward Egypt every accused person suspected of insanity is examined by a lunacy expert, and every suspected convict, too.

(4) The imprisonment of quiet, slightly weak-minded people in English country asylums is an expensive hobby, when they might be boarded out in the country, as in Scotland, *e.g.*, in Devonshire and other western agricultural counties.

(5) The 4 in. opened windows in English asylums (is it *still* the rule?) may be a cause of asylum tuberculosis there.

(6) Promotions of asylum medical officers in England should be for scientific work; until the Medico-Psychological Association and the Commissioners insist on that point, lunacy won't progress. That's the pivot of the thing. Nomination of superintendents should require Commissioners' approval and Commissioners should call for the list of candidates and see that the most scientific man gets the post.

(7) A curse of medico-psychology is the loose use of terms. Every writer and speaker uses each term in his own special sense. The Medico-Psychological Association should appoint a committee to issue a lexicon of psychological terms with *exact definitions* of each term, and that definition should be accepted by English countries. At present we are in a muddle, *e.g.*, "confusional insanity" is a movable feast, and with some writers refers to nearly everything, including general paralysis, senile dementia, etc. Others limit it to toxic states—by the way, no toxins have been shown to cause this state, it's all

theory. "Dementia" has spread all over the field. "Melancholia" is a term for idiopathic melancholia, for symptomatic melancholia, for melancholic general paralysis, etc.

(8) I don't believe we make ourselves insane by absorbing toxins from our intestines. The most constipated of all (old ladies) are not specially liable to be insane. First catch the toxins and show their effects. Until then I won't use the term autoxic insanity.

But I spare you; you have had probably more than enough. Well, I don't *often* "take the cork out," so excuse this overflow.

Yours truly,

JOHN WARNOCK.

Part IV.—Notes and News.

THE MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.

THE QUARTERLY GENERAL MEETING of the Association was held at the Medical Society's Rooms, No. 11, Chandos Street, Cavendish Square, London, W., on Thursday, February 17th, 1916, Lieut.-Colonel David G. Thomson, M.D., President, in the chair.

There were present: Drs. Fletcher Beach, David Bower, A. Helen Boyle, R. Brown, P. E. Campbell, J. Chambers, R. H. Cole, M. Craig, Emily L. Dove, T. Drapes, J. H. Earls, A. H. Griffith, H. E. Haynes, R. W. Dale Hewson, H. A. Kidd, N. Lavers, R. J. Legge, T. S. Logan, W. H. C. Macartney, H. J. Mackenzie, A. W. Neill, W. F. Nelis, H. Hayes Newington, J. G. Porter Phillips, H. Rayner, G. M. Robertson, Sir George H. Savage, J. N. Sergeant, G. E. Shuttleworth, R. Percy Smith, J. G. Soutar, R. C. Stewart, W. H. B. Stoddart, J. Tattersall, W. R. Watson, H. Wolseley-Lewis, and R. H. Steen (Acting Hon. Gen. Sec.).

Present at Council Meeting: Lieut.-Colonel David G. Thomson (President) in the chair, Drs. James Chambers, R. H. Cole, Thomas Drapes, Neil T. Kerr, Norman Lavers, H. Wolseley-Lewis, H. J. Mackenzie, H. H. Newington, G. M. Robertson, J. Noel Sergeant, J. G. Soutar, and R. H. Steen (Acting Hon. Gen. Sec.).

Apologies for absence were received from: Drs. T. S. Adair, R. Armstrong-Jones, R. B. Campbell, H. Devine, J. W. Geddes, J. Keay, G. D. McRae, G. E. Peachell, G. S. Pope, T. E. K. Stansfield, and F. R. P. Taylor.

MINUTES.

The PRESIDENT asked the meeting to confirm the minutes of the meeting of November last, which had already appeared in the *Journal of Mental Science*.

The minutes were accepted as correct and duly signed.

OBITUARY.

The PRESIDENT said the first business which arose out of the meeting of the Council just held was to ask members to approve of a vote of condolence being sent to the relatives of members of the Association who, he regretted to say, had died since the last meeting. They were Dr. O'Neill, of Limerick; Dr. Fox, who was one of the oldest members of the Association, his membership dating from the year 1861—almost a record probably; and Dr. Morrison, of Hereford,

who succumbed quite recently. He asked members present to approve of a vote of condolence being sent to the relatives of the deceased.

This was agreed to by members rising in their places.

THANKS TO DR. MACDONALD.

The PRESIDENT then asked the meeting to accord a vote of thanks to Dr. Macdonald, of Dorchester Asylum, who had been good enough to present to the Library of the Association a complete collection of the journal *Brain* since its first issue, which would constitute a valuable present to the Library.

The vote was carried by acclamation.

ELECTION OF NEW MEMBER.

Dr. Cole and Dr. Mackenzie acted as scrutineers for the election of the following lady as an ordinary member:

MURRAY, JESSIE M., M.B., B.S. Durham, 14, Endsleigh Street, Tavistock Square, London, W.C.

Proposed by Drs. A. Helen A. Boyle, Robert Armstrong-Jones, W. H. B. Stoddart.

The election was unanimous.

PAPER.

"The Employment of Female Nurses in the Male Wards of Mental Hospitals," Dr. GEORGE M. ROBERTSON (Physician-Superintendent of the Royal Edinburgh Asylum, Morningside). (See p. 351.)

Dr. W. H. B. STODDART said he had been asked by Dr. Robertson to say a few words on the subject, not, he imagined, because he had had any special experience of it, for he had none except as an onlooker at certain institutions. The reason probably was connected with a letter which he, the speaker, wrote suggesting that female nurses might be substituted in some of the asylums, during the war, for male nurses. He was very pleased to hear that that had been done; and he considered that Dr. Robertson had done members of the Association a great service by pointing out that it was an anachronism to have male nurses in male wards, and that the custom really dated from a time when the insane were regarded as being dangerous people. The reasons given were a kind of rationalisation somewhat similar to the treatment of hysteria by valerian, although that too was still carried on. With regard to the difference between the auxiliary and the entire system of female nursing, it seemed to him that, to begin with, the auxiliary system pointed the way in which nervous superintendents of asylums might try to start female nursing in the male wards; they could then pass gradually to the establishment of the complete system. Dr. Robertson had referred to the use of general nurses in asylums, *i.e.*, those of hospital training; and in one sentence of his paper he said it was a great advantage to place a hospital nurse with asylum experience in charge of the nurses. Personally, he, Dr. Stoddart, would have preferred that Dr. Robertson had put it the other way round, and said it would be a great advantage to place a mental nurse who had hospital experience in charge of the nurses. His own experience convinced him that the nurse who started with a general experience never became as good a mental nurse as one who started as a mental nurse; the two kinds of nurse did not seem to accept their responsibility in the same way. Dr. Robertson said that one of the objections urged against the system was that a male insane ward was not the place for a woman to be in. He took that to mean that it was on account of the woman's influence on the patient. But the female had a controlling influence on the male patient. As a matter of fact, one knew, from observation in institutions where female nurses were so employed, that the proximity of male patients did not exert any bad influence on the female character. One noted the effect of the presence of a female even in institutions where female nurses were not employed. He believed most members of the Association would prefer to take a lady friend round the male side of an asylum, rather than round the female side. Male patients controlled themselves much

better than did female patients. It seemed to him that there was more to be said in favour of the employment of male nurses in a general hospital than in a mental hospital. The patients in a general hospital were usually suffering from physical pain, and in moving them the strong arms of a man caused them much less distress than when weaker woman essayed the task. A further point which occurred to him was, that in any asylum one found that the decoration of the wards on the female side was better and more tastefully done than on the male side where male nurses were employed; there were more flowers, and the general aspect of the place was much brighter. He therefore thought that it must be a distinct advantage from that standpoint to have the female touch and atmosphere on the male side in a mental hospital.

Dr. SOUTAR remarked that Dr. Robertson had spoken with great enthusiasm, and with very strong conviction. Having converted Scotsmen to his views, he had come south to convert the still heedless southerners. The opener gave an interesting historical sketch of the evolution of the employment of women in the male wards of asylums. In the course of it he mentioned that they were first so employed many years ago in the Gloucester County Asylum. What seemed to be significant in regard to that was that, after Dr. Hitch resigned, the succeeding superintendents found that his system was not suitable, and so ceased to make use of it. It could not be said that these were men who were not open to the consideration of improvements that were possible in regard to the care of the insane. In Dr. Robertson's sketch he omitted to mention one of the most remarkable papers ever published in the *Journal of Mental Science*. It was published in 1866, and was entitled "Sisterhoods in Asylums." It was based upon a report of the Commissioners in Lunacy which had been issued a few years before, namely, in 1859. It specially dealt with the status and quality of the work of attendants. In the course of that report it was pointed out that they were not as perfect as they might be. The writer of that remarkable article went very much further, and made such statements as that it was unanimously agreed by medical superintendents that their great trouble was with their attendants, and went on to say that, in the mass, the male attendants were "coarse, harsh, passionate, indifferent, untrustworthy, and intemperate." All he had to say, in passing, was that if this was a fair report of the male attendant fifty years ago, no more extraordinary reformation or revolution—for as such it must be regarded—in the moral and ethical sphere had taken place in our social system, for if one were to characterise the male attendants of the present day, epithets would be employed which, in their meaning, conveyed the exact converse of those which he had quoted. The author of "Sisterhoods in Asylums" gave it as his reason why women should be employed in male wards of asylums that the attendants were utterly bad; and he spoke of the humanity and gentleness of women, and of their virtues generally, as contrasted with those of men. Dr. Robertson had stated that women were employed as auxiliaries in various county asylums; they were employed in one of the great Lancashire asylums for a time, and they were the wives of the attendants, and he believed their duties consisted largely in household work, the men still looking after the patients. The point in the historical review which appealed to him was that, as this question had been brought prominently before the specialty during many years by its advocates, and at a time when it could be said with some truth, what cannot be said to-day, that male attendants as a body were of poor quality, the general employment of women in the male wards of asylums would have been an accomplished fact long ago had it possessed the advantages which Dr. Robertson claims for it. Its value would have been recognised by those competent and progressive-minded men who have presided over our asylums, and who have shown themselves ever eager to benefit those under their care. Dr. Robertson also talked of the hospitalisation of asylums. This word "Hospitalisation" seemed to bring to some minds a balm and a soothing calm very much as the blessed word "Mesopotamia" did to the dear old lady of legend. But asylums could not be run on shibboleths. The notion which underlay the hospitalisation of asylums was due to a misconception, based upon a failure to differentiate between the conditions and purposes of two classes of institutions. The inmates of hospitals and infirmaries were persons who were, in the ordinary sense, sick physically; and they were patients who were amenable to direct dietetic and medicinal treatment. On the other hand,

the majority of those who came into asylums were not sick in the ordinary acceptance of the term. It was true they were abnormal, but not sick. They were, rather, what Sir George Savage called "misfits": people who were incapable of adjusting themselves to the ordinary environment, and unable to care for themselves in the ordinary way. Provision was therefore made for them, and the environment was adapted, as far as possible, to their needs. That, of course, was a totally different thing from the case of a patient in an ordinary hospital. These patients, instead of being kept in bed, doctored and nursed, were brought into a community and into surroundings which were suited to their needs, and their physical integrity was taken advantage of in employing them in workshops, farms, and gardens. The environment was regulated by those who understood the inmates' abnormalities. That applied to the great majority of them. There was another set of patients whose mental condition was the expression of definite illness, and these were treated as sick persons. But he did not see that Dr. Robertson had proved that those persons could be, or were, better nursed by women than by men. The opener did not attempt to show that his experience of male nurses was in fact an unfavourable one, and Dr. Soutar's experience led him to the conclusion that by proper selection and training male nurses of the highest degree of excellence can be and are obtained for the care of these cases, and that they possess, in an equal degree with the best women nurses, all the gentler qualities and, in addition, that physical strength and endurance which on occasion are imperatively essential for the proper management of cases of acute mental disorder. There was another set of patients in asylums—sick persons and feeble persons, cases of ordinary illness, such as occurred in hospital wards. Here women nurses could more appropriately be engaged. But his own experience had not been that male nurses were so deficient in the gifts and skill of nursing that he would feel justified in ousting them and putting women in their places. Dr. Robertson also spoke of the superiority of women in household duties, but male nurses ought not to be employed in the discharge of household duties. If male attendants were employed to make beds, clean out dormitories, and polish up brasses, it was an absolute misuse of them, and their energies were thus misapplied. There should be an ordinary domestic staff for that work. That women make better housemaids than men is no argument for their employment as nurses in the male wards. The final consideration which he wished to submit was that if woman's influence was so absolutely invaluable in asylums, if it was the one thing which was going to humanise the whole system, which was going to hospitalise it or make it the ideal thing which Dr. Robertson desired and believed possible, then, inasmuch as it was certain that the character and tone of an institution very largely depended upon the influence which was exerted by its chief, it became the duty of himself and Dr. Robertson, and all his brethren in the specialty holding similar appointments, to at once tender their resignations, and ask that women doctors might be appointed in their stead, in order that the feminine influence might fully prevail.

Dr. SERGEANT said he had listened with very great pleasure and interest to Dr. Robertson's paper, more particularly because he happened to be an English disciple of the Scottish school. Four and a half years ago he was fortunate enough to be appointed to the charge of a small private asylum in the Metropolitan area; and he commenced with an antipathy to things as they were, and set about to see in what way he could alter them. He claimed that he approached this question of the employment of female nurses for male patients with an open mind. He first considered the problem of having a solely male staff, including the cook—for he knew there was generally a difficulty between the male and female staffs when they mingled. He realised that a most important thing was to get a capable male attendant. He was advised by the Board of Control to write to the Superintendents of the Scottish Royal Asylums, and that he regarded as a tribute to them. He accordingly wrote to those Superintendents, and most of them, in their reply, said the class of male attendant was not now so good, because the Scottish asylums were appointing matrons in supreme charge; hence there was not now the same inducement for the male attendant to enter asylums. After a brief period of experimenting with a totally male staff, he came to the conclusion that the system was not good, and he, therefore, switched off to the other idea, namely, that of having an exclusively female staff. He had now had a four-years'

experience of it, at first tentatively, and then in complete degree. At present he had only sixteen patients, all of them male, and his whole nursing staff was female. A member of the English Board of Control, who was visiting the house some time ago, said he was interested in the method, as he understood that one learned gentleman said it was impossible to nurse difficult male insane patients with female nurses; and he added that there were some troublesome cases among those he saw there, and he confessed that they were excellently nursed by female nurses. Judging from his, Dr. Sergeant's, small personal experience, he was of opinion that female nurses in asylums were infinitely better than male ones. Papers were read and discussions held on the subject as if the nursing of male patients by females was something odd; yet it seemed to him perfectly obvious that male patients should be nursed by female nurses; and he would welcome the day when the nursing of male patients by men would be the subject for discussion. Because male patients had been nursed by males, it had passed into the accepted order of things, and so it was probable that, for many years to come, the ablest men in the specialty would be devoting time and trouble to defending the system because it was the accepted one. That was at the bottom of Dr. Soutar's contention, that because it had been before their specialty for many years without having been adopted, it was therefore wrong. It was, however, conceivable that the view of this branch of the profession on the subject was wholly wrong.

Dr. LEGGE (Derby) said that the subject dealt with in Dr. Robertson's paper had received his close attention for the past four years. His Committee decided to build a new asylum at Mickelover, at a cost of a quarter of a million pounds, and they asked him to advise them as to the type. He was present at the Association's meeting ten years ago, when Dr. Robertson read his former paper on the same subject. He remembered that the reception it was accorded was not a favourable one, and he did not then agree with it himself. He felt that he could not advise his Committee well on the projected asylum without studying the systems which were in vogue in various countries. He paid some visits to Scottish asylums, on four of which he took his Committee with him. After studying the subject with an open mind, he became enthusiastically convinced that the Scottish system was many years ahead of anything obtaining in this country; and he felt quite certain that no one who had tried the Scottish system would go back to the other. He had not heard objections to it from anyone who had given the female nursing of male patients a fair trial. He convinced his Committee of this, and the plans were now ready, although their execution had been delayed by the war. Provision was being made for 1,000 patients, and it was intended that half the nursing on the male side would be done by women. He was fortunate in having a very intelligent and business-like Committee, and the members of it became as enthusiastic as he was himself. As the system was somewhat of an experiment in England, they asked him whether the Scottish system could not be adopted at Mickelover. He replied that he could not adopt the Scottish system in its entirety, but he promised to try it on a small scale; and he got two wards, holding about forty patients each, which were now entirely nursed by women. Dr. Robertson drew a distinction between the auxiliary employment of women, such as was advocated to carry asylums over the war time, and the thorough adoption of female nursing, a very important distinction. At Mickelover the system was adopted fully. Ninety *per cent.* of the recent acute male patients as they came in were put straight into bed in the wards and nursed by women, both by night and day. At first he was anxious about the result, but he was now certain there was no thought of reverting to the old system. The improvement in the patients was wonderful. There was no arrangement of night-clocks, or any of the fetishes seen in this country; the patients were calm, less troublesome, and in every way better than under the old system; that he could affirm most confidently. Those who had not tried the system would scarcely believe what a difference it made. And one got rid of some things one was ashamed to have; one was not troubled with complaints from patients, for it would be obviously ridiculous for a male patient to aver that a little woman had struck him. Under present conditions, patients were very much more amenable to suggestion than they were in the care of men. Dr. Robertson had now become so used to the Scottish system that he had not enlarged on many points of comparison which he might have done. It was

essential that new patients should be kept in bed. In the cases in Scotland he had seen this was always done, and he had adopted it himself. It implied having a much larger night staff than was usual in England. At his asylum there were five night attendants on the male side and five on the female side, with a population of 800. But instead of ten there should be twenty-five. He wondered whether members had really thought what was the condition of the night nursing in English asylums; was it not the fact that patients who were sick were more or less neglected at night? ("No.") He was speaking of large asylums; the staff at night was not sufficient for the purpose. At Mickleover there was at first a staff of five for 400, and one of these walked about the place at night, one was in the infirmary ward, two were looking after epileptics, and one was looking after suicides. Was one man sufficient for so many sick people? He would be glad to be corrected if he was mistaken. He felt that the night nursing in English asylums was not efficient, and, with the staff allowed, he did not think that was very wonderful. And, of course, the Commissioners did not make night visits. And there were other things in English asylums which should be got rid of. How many were proud of their "foul laundry"? It was regarded as a blot on the system. In the Scottish asylums the foul laundry did not exist. What was the cause of the foul laundry? It was due to patients of filthy habits being kept in their ordinary day clothes. In Scottish asylums those patients were invariably kept in bed, so that the chief necessity for a foul laundry ceased to exist. English asylums were controlled by an elaborate series of night-clocks, and he considered they were a loss. In Scottish asylums there was the responsible night matron, a lady who was not at all likely to form intimacies with any member of the staff, and could be trusted to see that everyone was doing her duty. These difficulties disappeared automatically when the asylum was staffed by female nurses. He could not too strongly express the satisfaction he found in the system, which was in working order a considerable time before he left.

Dr. WOLSELEY LEWIS said he was not prepared to agree with Dr. Legge in eulogising the Scottish asylums at the expense of the English to the extent which that gentleman seemed anxious to do. He was, however, in a position to endorse all that Dr. Robertson had said in favour of female nursing on the male side of the asylum, *i.e.*, in regard to infirmary wards. For a good many years he had had the infirmary wards on the male side of the asylum of which he was in charge nursed by nurses, and he had every reason to suppose that it was an entire success. When he introduced it he had some few difficulties, such as Dr. Robertson hinted at, as it was a new departure. He had letters from the parents of nurses who were going into the infirmary ward, asking whether he thought it was a proper thing that nurses should be asked to nurse sick male lunatics. He had many difficulties of that kind, and after a year or so he discovered that, so far from there being any disadvantage to the nurses, he had found, as Dr. Robertson had, that his nurses actually liked being in male wards; the work was interesting, and they stated that the male patients were better conducted and better behaved, and they were more grateful to the nurses, than were female patients. He had had no experience of female nursing in other wards than the infirmary ones, because, unfortunately, structural difficulties stood in the way of it being done in other parts, because it would mean mixing up the male and female staffs. His infirmary wards were entirely nursed by females, by both day and night, the male staff taking no part except in bathing those patients who were well enough to be bathed in a bath weekly. Any washing of the patients in bed was done by nurses. He could also confirm, from experience, what Dr. Robertson said with regard to the class of patient that female nurses were willing to nurse; they were delighted to nurse any patient who was confined to bed; but in the case of men patients who became unruly, who could get up and run about in their nightshirts, they did not like them, especially if they were of an objectionable class. One thing which Dr. Stoddart took exception to he also wished to take exception to, namely, Dr. Robertson's disposition to advocate the employment of hospital-trained nurses in asylums. He was very much in opposition to that. His own view was that their duty as an Association—and it was set out as one of their aims—was to train their own nurses. He was not at all willing to accept the suggestion that because a nurse had been trained in a hospital, she was a better

nurse than was one who had been properly trained in an asylum. If that were so, it constituted a very grave reflection upon the Association; it meant they were not conducting the nurses' training in the proper way unless that training had the result of producing a more efficient article for asylum purposes than hospital training could do. The reason, he thought, why women were so much better in the nursing of sick people was, as Dr. Robertson so happily put it, because there was implanted in them the mothering instinct; and there were very many cases in his experience in which he had found that women had a most beneficial effect upon the patients, not only sick patients, but recent cases. There were many recent cases of melancholia, etc., in the nursing of which he found women nurses infinitely better than men for the purposes of getting the patient well. One thing which had very much struck him, as it had probably struck everybody who had had experience of this kind of thing, was the remarkable improvement in the tone of the patient under these circumstances. One took an isolated patient, and, with some feeling of dread lest he should grossly misconduct himself, placed him under the care of a female nurse; but it was soon shown that he improved in a remarkable manner. And it seemed, as the author well said, that even in very bad patients the spirit of chivalry was not entirely lost, and the mere fact of being placed under the care of a woman reawakened that spirit, with the result that these patients, under the care of a woman, were extremely well conducted. Yet, while not agreeing with Dr. Soutar's contention, he was not prepared to suggest that there were not, in English asylums, a large number of the most excellent male attendants; but he thought it probable that the latter were used more than they need be. He believed that a very large number of the quieter patients, if in charge of female nurses, would be much better conducted than they were now under the care of male attendants.

Dr. BRANDER said he did not desire to encroach on the valuable time of the Association, but the subject now under discussion was a contentious one. During the last few years he had himself been severely tried by having a number of male wards staffed by female nurses; and they had been more trouble to everybody who had anything to do with the administration of the male side than all the other wards in the place combined. He did not know how those who so strongly advocated the system arranged the administration of these wards: Were they under the matron, or under the head attendant, or under both? In the event of anything going wrong, did they mutually cast blame each on the other? He considered that the arguments which had been advanced in favour of the introduction of female nurses into male wards were fallacious to a degree. It had been said that the mothering instinct of females enabled them to nurse male patients better than male attendants could nurse them. That his sad experience enabled him to utterly disagree with. He admitted that female nurses would not attempt to employ violence towards male patients; they were not going to break any patient's bones; but, on the whole, he thought their kindness towards male patients was not as great as that of properly trained male nurses. Those who said that male attendants could not nurse male lunatics as well as female nurses could, either were unable to choose their attendants and train them, or they could not control them. If they could do those three things, they would get male nurses who would do just as well, and treat the patients quite as kindly, as would any female nurses. The argument based upon economy had been advanced from time to time in this controversy; and if anybody cared to go fully into that matter, he would find that while female nurses were staffing male wards, patients did more for one another in the way of personal attention, washing, feeding, etc., than would be tolerated in a ward where female nurses were not employed; and wards could do with many fewer male attendants than would be required in the case of staffing with females. He remembered on one occasion transferring a male melancholic stuporous case to a ward in which there were female nurses, and the patient's wife came to the speaker in a state of great agitation, asking why he had been moved to that ward. His reply was that he had transferred him to a ward where there were female nurses, who would treat him kindly. She replied that she was herself an asylum nurse for a number of years, naming the asylum, and she knew that the male attendants were kinder to the men than were the nurses. He regretted he could

not argue against her point of view. One also had to consider the effect that being in a male ward had upon the female nurses, and it was a very considerable effect, one which could not be ignored. If the employment of female nurses was restricted to looking after male patients in bed, he would not grumble. He would like to learn the statistics as to how many female nurses in this country had protested against going to do duty in male wards of asylums. He knew of numbers who had resigned rather than go into such wards; and he sympathised with them. They did not mind looking after the sick, but they did object to attending to the sick who were up and about. Many times he had been asked by patients who had been transferred to wards where there were female nurses to transfer them back to those in which were male attendants, because they were happier there. The tact and forbearance which women could admittedly exercise quickly disappeared when the patients were unable to appreciate them; and it was replaced by harshness and irritability. With regard to the feminine touch in male wards, there was no doubt that female nurses kept the wards tidier and more artistic than did male attendants; they were instinctively given to it. But did that add in any way to the comfort of the patients? He could not see any advantage in having female nurses in male wards, but he saw many disadvantages in it. Dr. Robertson had said that at Morningside Asylum the attendants were under a female staff, and he would like to know what inducements Dr. Robertson gave them to improve themselves. They had no prospect of rising to a superior position, nor, presumably, of increased pay; consequently, either the staff did not stay long, or they must be of a grade of intelligence from which a high standard of nursing would not be expected. During the war an attempt had been made to place male attendants temporarily in wards with females to assist them; but any persons of intelligence who were there in the institution would not remain in a subordinate position under nurses, and he believed that was the case all over the country. He did not know whether it was the experience of other people, but it was his own, and he felt somewhat strongly on the matter. He hoped that from what he had said members would be able to glean what had been his personal experience of female nurses in male wards.

Dr. HAYES NEWINGTON said the terms of Dr. Robertson's address rather put him, the speaker, out of court, for he was discussing the employment of female nurses in male wards in mental hospitals, of which he, Dr. Newington, had no experience for many years. Still, Dr. Robertson asked him to say a few words on the subject. The first thing which struck one was, as the last speaker mentioned, that the subject was a contentious one. But he thought both sides were right, and that both were wrong. He did not think any man was in a position to say a woman could not do a large amount of good on the male side of an asylum, but he thought it would be most dangerous to accept the principle that the woman nurse was essential on the male side. He would be willing to propose a general abstract resolution stating that females should be used as much as possible in nursing male patients. But Mr. Gladstone was wise enough to warn one against anything like a general abstract resolution, because it was found to be very inconvenient when it was turned into practice, and that was the case here. There could be no doubt that female influence was extremely useful on the male side: and one might say that there were cases in which a little male influence on the female side might do some good. Some female patients were always better with the doctor than with members of their own sex. But he thought it would be an intolerable nuisance if it were to get abroad that it was the opinion of this Association that the female nurse was an essential, because she could not be so in any way. There were many drawbacks. For instance, one could not be sure that all patients cared to be under female nurses; they were not all sick people; many of them had retained the use of their brains. He tested that two or three days ago by asking one of his gentlemen whether he would like to be nursed by a female, and he replied: "By all means." The speaker found afterwards that this young fellow was in the habit of discussing the attractions of the nurses. He was told that if he did have a female nurse he would have to take her with him on his outings to Hastings, and his views changed at once. The sexual question, though a serious one, could be discounted to a considerable extent; but in mental institutions one found sexual cases which did not admit of females coming within measurable distance of them. He,

the speaker, had some. They got on well amongst men, but he had several ladies on his staff, and when they were going about he had to take special precautions that those patients did not encounter them. If female nursing were adopted as a general principle, cases such as he had mentioned must be moved and kept in appropriate places; and it might be that thereby much hardship would be caused to those cases by the segregation owing to there being female nurses about. The fact was that the question was hedged about by limitations, which must not be forgotten in assessing the value of female nurses in the nursing of male patients.

Dr. DRAPES said members would feel indebted to Dr. Robertson for reading his paper and giving the Association an opportunity of discussing this most interesting subject. Pioneer work was always work which encountered opposition, and that was natural in the case of a subject like the present one. But one fact was worth a thousand arguments; and those members who had not had experience of the employment of female nurses in male wards of asylums were scarcely in a position to judge, or to come to a decision as to what was the best method to adopt. The facts which Dr. Robertson had brought forward could not be put on one side. The experience which the opener of the discussion related was not of mushroom growth, but was one which, as the author said, had extended back for sixteen years. And when Dr. Robertson said that he and his institution would not revert to the old system on any account, he must have a strong conviction in his own mind; and he had brought forward sufficient material to warrant the conclusion that the system he had adopted was superior to the old one. Dr. Legge had also become so impressed with the advantages of the system advocated by Dr. Robertson that he, too, although at one time opposed to it, said he would not now go back to the old one. He could not altogether agree with Dr. Soutar when he said that insane people were not to be regarded as sick persons. How did one know that a person was sick? Was it not because he had disturbance of function? The mind was a function of the brain, and when a man's mind became disturbed he was just as much a sick man as a man with albuminuria was the subject of kidney disease. Members should not give up the idea that every insane person was a sick person. Deformed and undeveloped persons, although not "sick," were found in orthopaedic and other hospitals, and were quite analogous to cases of congenital brain affections. He therefore thought that the "hospitalisation" of asylums came in as a natural sequence. And although Dr. Soutar's speech included some good-humoured banter directed against this idea, he thought it was good to try to bring the routine of asylums into harmony as much as possible with that of hospitals. And although he had no experience of it, he thought that this system of female nursing in male wards of asylums would not improbably constitute the keystone of the arch of the humane treatment of the insane in a possibly not very distant future.

Dr. FLETCHER BEACH said that for six weeks he had had to put female nurses into male infirmary wards at Cane Hill Asylum because so many of the male attendants had been taken out of the asylum to serve the country. During that period of six weeks he had watched to see how the change worked. He asked the female nurses whether they wished to return to the female side, or would they prefer to nurse the men; and their unanimous answer was that they preferred to nurse the men, who were so much more amenable to treatment than were the female patients. Dr. Robertson mentioned in his paper that on no account must young nurses be put into the male wards. He, the speaker, did not agree with that. In his infirmary wards he had four junior nurses—eight altogether in two wards. He had carefully noted how they managed, and had asked the men patients which they preferred, and they answered in favour of female nurses. There was one man employed in the wards, and he attended to the bathing of the patients, shaving them, and such small duties. He would like to hear from Dr. Robertson whether he would put his female nurses in charge of acute male cases, such as acute mania, delirious mania, etc., because he mentioned that he had two male attendants in some of his wards; and possibly that was the reason. Another point was that many patients were sent out to work on the land; and he assumed that Dr. Robertson would not put a female nurse in charge of such a party. He would like to add his word of protest to that of others who had spoken against the placing of the hospital nurse over the mental nurse. The Association's nurses, having had three years' training, were certainly as good as any hospital-trained nurse.

Dr. NEILL said that one of the points which certain gentlemen objected to was the placing of a hospital-trained nurse in charge on the male side. That course might not be essential later on, but in the commencement of the system of the nursing of males by females it seemed desirable, because the ordinary asylum-trained nurse had had no previous experience in nursing males, whereas the hospital-trained nurse had, and she could instruct the asylum nurse in those matters which were needed for the proper conduct of the ward. In an experience extending over seven years he had never, at any time, found any difficulty in respect of the management of the male patients by the female nurses. These patients were usually quite amenable, and with a little persuasion gave in to any instructions which the nurses gave them. He had spent many hours a day in those wards, and he had never seen anything in the matter of behaviour which could be taken exception to. Nor had he seen, among the nurses, any backsliding in moral tone, a point which several speakers had laid stress upon, giving the impression that they had been somewhat unfortunate in the nurses they had. He found that with female nurses a great improvement took place in the appearance of the patients; they were better cared for and were tidier, and the whole tone of the ward was much raised as compared with the former conditions. The language, which on occasion was very objectionable, always ceased with the appearance of the nurse on the scene, and it was not indulged in when she was present. There was the point raised as to the nurses who objected to being placed on the male side. When the new system was started at the asylum with which he was then connected, the matron and the nurses were selected, and they were told of their selection to serve on the male side, and were asked whether they had any objection to going. No objection was raised by any of them. After they had been on duty on the male side a few days they said they preferred working with the male patients, and expressed the hope that they would not be transferred back again to the female side. The reason given was that they found the men patients very amenable, and that the male patients followed their instructions very much better than did the female patients. It had been said that sometimes relatives objected to female nurses looking after their male relatives. In talking with relatives of male patients he had never heard such objections urged. Many of them, on the contrary, were pleased that their sick relatives—and his experience was that many of the patients admitted into asylums had some disturbance of their physical condition too, and that when the physical condition was improved the mental condition often cleared up—were being looked after by females, either while in bed or when they were up and about the wards. Relatives were also, he found, pleased when they knew a matron was in charge of the ward, because they considered it meant that many of the little things which make so much difference to the happiness and comfort of the patients would be attended to, when such was not likely if male attendants were in charge.

The PRESIDENT: Before calling on Dr. Robertson to reply, I would just like to thank him for re-introducing this interesting subject and giving us the benefit of his extended experience since he first brought up the matter ten years ago, especially now, as, owing to the shortage of male labour, many asylum superintendents have *nolens volens* to employ women nurses in work hitherto done by men. In such a controversial matter as this it appears to me that the point of view of the advocates on each side is the main determining factor. Those who believe that asylums are institutions *sui generis*, containing but a small proportion of actually sick persons who are nursable by women, but the great proportion of whom require attendance rather than nursing, will not agree with, or certainly will not go so far as, Dr. Robertson in his strong advocacy of complete staffing of male wards by women; whereas those who believe, like Dr. Robertson, that the nearer a mental hospital is made to approach a general hospital in ideals and practice will follow him *con amore*. Personally I am a convert, with limitations—although, unlike most 'verts, not a bigot—to the nursing of recent and acute mental cases, as well as those chronics in whom active bodily disease or infirmity accompanies mental disorder, *e.g.*, children, seniles, and some epileptics, by women nurses, but these should be asylum trained; if hospital trained in addition so much the better; but I protest most strongly against only hospital-trained nurses being placed over those only asylum trained, either as officers or sisters; otherwise our system of training our mental nurses is vain. I think "hospitalisation," as Dr. Robertson calls it, is apt

to become a fetish, an over-ridden hobby, and a man must be blind to common-sense and facts who looks upon, and provides for, the great mass of asylum patients in the same way as he would for general hospital patients. If asylums were divided into the two classes of recent acute hospitals for mental disorder, and chronic institutions for chronic, non-recoverable cases, it would be different, and I for one would be in favour of "hospitalising" the former to any extent, but at present we have not yet attained that ideal. As officer in charge of a war hospital, I have renewed my acquaintance with some 200 general hospital-trained nurses, and, with the exception of their technical skill in dressing surgical cases, the more I see of their general ward work and management, the more highly do I think of asylum-trained nurses. This discussion has been more on the lines of general principles than on individual *pros* and *cons*, but I would like to refer to one "*pro*" in support of Dr. Robertson's case which has so far not been mentioned in papers and discussions on this subject, *viz.*, I think it is a misuse and waste of male attributes to see a stalwart young man training as an attendant doing his year in the sick wards, feeding an advanced general paralytic, say, with sop, and carrying out other nursing duties, which, without any shadow of doubt, are women's work. Again thanking Dr. Robertson for bringing this important and interesting subject before us for discussion, I will now call upon him to reply.

Dr. ROBERTSON replied to the points raised in the discussion.

THE MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.

A SPECIAL MEETING of the Council of the Association was held on March 21st, 1916, at 11, Chandos Street, Cavendish Square, W., to consider "the grave situation which it is feared will shortly prevail in asylums owing to the shortage of experienced male staff." The Council had before them a report from the Acting Secretary which is appended herewith. A useful discussion took place and a certain mode of action was adopted which will in due course be communicated to the Association.

REPORT TO COUNCIL.

21st March, 1916.

MR. PRESIDENT AND GENTLEMEN,

As many of the members of this Council are aware, on March 15th I sent out circulars asking for certain information, so that I might have something definite to place before the Council this afternoon.

These circulars were sent to the Medical Superintendents of the County and Borough Asylums of England and Wales, numbering 86, and replies were received from 73. From these replies we have to deduct 12—namely, 4 sent letters and no figures, and 8 sent figures which were of considerable value, but certain questions were unanswered, and it would have confused the averages to have included them, so that the results are founded on 61 correct replies. The circulars were also sent to all the registered hospitals, which number 14, replies being received from 10. A few private asylums selected by myself were also asked to co-operate. I think it gives distinct evidence of the business-like methods of many asylum superintendents that answers were in the greater number of cases received by return of post. That the replies were so numerous is to my mind evidence of the great interest the matter is arousing; though, it may be remarked here, that one member sincerely trusted that this would be the last table he would be asked to supply on this subject.

The circular was arranged somewhat hurriedly, and the nature of some of the questions, therefore, undoubtedly lend themselves to criticism. No. 4, for instance, is ambiguous. The question I wished to put was this: "Suppose all your men of military age leave, including those for whom the Commissioners have recommended exemption for only three months, how many men will you have left?" In some cases, no doubt, by the time all the men have been called up other temporary men will have been obtained, and these should be included in the number. But most superintendents are like myself, in that they are unable to procure temporary assistance of any kind. By the notes attached to many of the replies, the question was understood as stated. Still, no doubt the figures must be regarded as not strictly accurate, but as giving a rough indication of the future state of affairs.

Again, question 5, the number of "trained" men left, was one which could be interpreted in a diverse manner. If the member replying had made a list by name of those in his employ, I doubt if any difficulty would have been found as to whether a certain individual should be classed as "trained" or "untrained." Take, for instance, a man of sixty years of age, with no previous asylum experience. He is more a watchman than anything else, and in case of emergency would have little idea what to do. By no stretch of imagination could he be called a "trained" man. However, it must be confessed that the results afforded by this must not be taken too literally, though they give a general idea of the straits in which many asylums will be.

The following are some of the results of the circular in County and Borough Asylums of England and Wales:

- (1) Before the war the proportion of male staff to patients was 1 to 7·8.
- (2) In the near future, unless the Board of Control will allow further total exemptions, the proportion of attendants to male patients will be 1 to 13·1.
- (3) The proportion of trained or experienced men will be 1 to 24·1.

If put in a different form, we have this average result: An asylum has 500 male patients. There is a head attendant and deputy head attendant and four night attendants. Before the war broke out there were 58 day attendants, picked men in the prime of life, few being over 55 years of age. The expectation is that shortly there will be 32 men, or three to each ward of 50 patients. Many of these are old, with physical defects, and the whole asylum will only have 16 trained men for day duty. In these circumstances two questions arise: How is any leave to be given? and—What will happen when the staff are at their meals? An outbreak of influenza would be a calamity.

In all 823 men were proposed by Visiting Committees for exemption, and total exemption was recommended by the Board of Control in 203 cases, and partial (for three months in most cases) for 406.

The number of female nurses employed in male wards is at the present time 225. This is 6 *per cent.* of the male attendants in pre-war days, or one to 141 male patients.

There are several specially hard cases which may be here mentioned. One asylum expects to be left with one trained man to 122 patients. In other cases the proportion will be one to 97 and one to 54. The proportions of less than one to 40 were numerous.

One member asks indignantly—What is the use of discussion if it is considered that "all men are equal"?

With regard to registered hospitals, it is evident that some have been very hardly hit. One correspondent, who has a fair number of male patients, many of them suicidal, dangerous, and infirm, writes: "You can imagine our plight when I tell you that an under-gardener and the chauffeur are the two best attendants I have at present, and I expect to lose at least one of them."

The requests for exemptions seem to have been generally sternly dealt with. In all 63 were asked for, and 14 absolute and 24 conditional were recommended. The result will be that cases will be refused. One member reports that already he has been compelled to refuse a case of acute mania owing to insufficient staff.

The private asylum figures were found to be of no value. In the first place, too few inquiries were made by me, and, secondly, each private asylum is run on individual lines, which prevents any satisfactory summary.

Of course it must be remembered that registered hospitals and private asylums can "shut down" either partially or totally if they desire, thus rendering the condition of affairs in county and borough asylums still more acute.

As will be noted in the circular, comments were asked for, and as many of the communications were marked "private and confidential," it will, I think, be best to treat all as such and mention no names.

Some of these comments were extremely interesting, and I am strongly tempted to quote several in full, but am deterred by the length which this report would then assume. I shall have to be content with a summary, which diminishes the vigour, but will, I trust, give an indication of the feeling which prevails in asylums on this matter.

There is a point which will create no surprise, but still it is only right to mention it, that all the writers expressed the greatest desire to assist the country in obtaining

as many men for the Army as possible. The Council does not need to be reminded of the great sacrifices made by asylums in the matter of men, but it seems to me that it might be advisable to bring the matter more prominently before the public.

In not a few cases no comments were given. No doubt the members felt that the figures spoke for themselves; in fact one member actually said so.

The comments may be easily divided into two groups:

(1) A small one, in which the writers were satisfied.

(2) A very large one, in which great dissatisfaction was expressed.

Group I.—One member writes: "I feel bound to protest as strongly as I possibly can against the policy of medical superintendents who desire to have any ward staff at all exempted from service." He states that his temporary staff are doing their work well, and he seems to be about the only upholder of the value of these men.

A second, who is quite satisfied, may well be so, as he expects to have a staff of 145 men as compared with 158 prior to the war.

The third, who is apparently satisfied, has more men than he had prior to the outbreak of hostilities.

A fourth, who has no complaint to make, intends to shut two male wards and overcrowd the remainder.

Another will have 57 men in place of the normal 68, 35 being trained men.

Yet another thinks he will be able to manage. He applied for exemption for 24 men of military age, and the Tribunal granted absolute exemption, though the Board of Control recommended only temporary exemption.

Group II is a large one, and, however impartial such a report as this should be, I cannot help being struck with the note of despondency and fear for the future which the letters contain.

They all state that they have done their best to obtain temporary assistance, and such temporary men as they have been able to procure have been unsatisfactory in the highest degree. In country districts the needs of agriculture are paramount, and in industrial centres where there are munition works the high rate of pay attracts every available man, woman, and child. Applications, as suggested by the Board of Control, to the regimental depots for discharged soldiers, have in many cases not been acknowledged, and in no case has a man been obtained. One member, who expects to have 20 instead of his normal staff of 45, has inserted 1,000 advertisements with little result. What will happen in case of fire or a Zeppelin raid is a point mentioned by not a few. All the strong young men have gone, and their places taken by old men or others with severe physical defects.

One member writes: "The responsibility for accidents or other undesirable things during this period of disturbance of our staff I have definitely disclaimed to the Board of Control, who agree with my contention."

One member, who has 402 male patients, states that he had 44 day attendants. He has now 32, and it is proposed that he should be left with 16, 4 of whom are quite inexperienced. He has advertised in local and London papers, communicated with record officers, military hospitals, and convalescent homes, and has been able to get only one man.

Another member, with 568 male patients, is appealing to keep 28 day attendants in place of 60, but expects to be reduced to 24.

They nearly all refer to the increased numbers, the result of receiving patients from asylums used as war hospitals. These numbers are brought out well by the statistics, which show that in 61 asylums before the war there were 28,568 male patients and there are now 31,896, an increase of 11·6 *per cent*.

In concluding this report I feel that the greatest thanks are due to the gentlemen who so kindly supplied the information asked for.

I am,

Mr. President and gentlemen,

Your obedient servant,

R. H. STEEN,

Acting Hon. Gen. Sec.

CITY OF LONDON MENTAL HOSPITAL,
NEAR DARTFORD, KENT.

[Dr. Steen regrets that he has found it impossible to reply individually to the many letters sent to him on the subject of the shortage of staff. He trusts that the writers will take this short notice as an acknowledgment of their communications.]

CITY OF LONDON MENTAL HOSPITAL,
NEAR DARTFORD, KENT,
March 26th, 1916.

Medico-Psychological Association of Great Britain and Ireland.

SIR,—At a special meeting of the Council of the Medico-Psychological Association, held on March 31st, returns were considered from asylums, registered hospitals, and licensed houses, which revealed an alarming shortage of experienced male attendants in these institutions. This shortage has been caused, and is daily becoming more grievous, through the absorption of attendants into the Army.

It has been ascertained that Local Tribunals throughout the country are sheltering themselves behind the recommendations of the Board of Control, and that they have almost invariably refused exemption for indispensable men solely on the ground that they have not been recommended by the Board of Control.

It is the opinion of the Council of the Medico-Psychological Association and of superintendents of asylums, if it was intended that the list of recommendations should be used in this way, that the number of exemptions recommended by the Board of Control is wholly inadequate for the requirements of the asylums.

The view which the Local Tribunals take of the intention of the recommendations deprives asylum authorities of the legitimate force of the arguments which they submit to these bodies for the detention of men whom they deem to be indispensable.

However sympathetic they may be, and however strongly they feel that the application is a just and reasonable one, the Tribunals consider that they must not go beyond or outside the recommendations of the Board of Control.

It is believed by the Council of the Medico-Psychological Association that the intention of the Board of Control in issuing the lists of recommendations was merely to secure the exemption of a nucleus of able-bodied and experienced attendants, but that they did not intend that exemption should be confined to these, or that the omission of a name from the list was tantamount to a decision by the Board in opposition to the claim of his employer that the man appealed for was not indispensable.

I have been asked to call the attention of the Board of Control to what is believed to be a misuse of their list of recommendations in the hope that the Association may receive an assurance from them, and that Local Tribunals may be directed that the force of a claim for the exemption of attendants who are not mentioned on the list must not be prejudiced by that fact.

The experience of members of the Medico-Psychological Association has made it certain that, without such a direction to the Tribunals, asylums will be deprived of the minimum number of efficient attendants, upon whom—as the Board of Control, in common with Asylum Medical Officers, have hitherto recognised and insisted—the humane and efficient care and treatment of the insane absolutely depends.

I am, Sir, your obedient servant,

The Secretary,
The Board of Control.

R. H. STEEN,
Acting Hon. General Secretary.

THE BOARD OF CONTROL,
66, VICTORIA STREET, S.W.
April 4th, 1916.

SIR,—I am directed by the Board of Control to acknowledge the receipt of your letter of the 26th inst., and in reply I am to say that in approaching their duties with respect to recommendations for exemption from military service, in order that they might be placed in possession of the full facts of the position of the various institutions as respects their staffs, they called for a return showing the names and other particulars of every member of the male staff, divided into the following divisions:

- (1) Medical staff.
- (2) Male attendants.
- (3) Clerical and stores staff.
- (4) Engineering and artisan staff.
- (5) Farm and garden staff.
- (6) Miscellaneous.

The Board decided that their powers of making recommendations for exemption only extended to Division 2, *i.e.*, "Attendants on Lunatics in Institutions for Lunatics."

As was, it was hoped, made quite clear to the authorities of every institution for lunatics, the absence of a recommendation by the Board with respect to any member of the staff in Divisions 1, 3, 4, 5, and 6 left it still open to the Visiting Committee to urge freely their own claims before the Local Tribunals and military authorities as respects these officers and servants; nor have the Board any evidence before them that there has been any general or frequent tendency on the part of Local Tribunals or military authorities to regard the absence of recommendations by the Board as being a *prima facie* reason for them to oppose recommendations made by the institution authorities.

In a very few instances (not more than three in all) where some misapprehension has been brought under the notice of the Board, they have communicated with the Local Tribunals, pointing out that, as regards engineers, gardeners, artisans, etc., whose principal and usual occupation is not in relation to the patients, the Board's view is that the Visiting Committee should at once apply direct to the Recruiting officer or to the Local Tribunal for such exemption for these employés as they may deem requisite; and that in these cases the absence of any recommendation from this Board should not in any way prejudice the hearing of the claim by the Local Tribunal.

With respect, however, to Division 2, though independent application for exemption may be made for special reasons not connected with a man's work as an attendant on lunatics (as set forth in Section III of the Regulations under the Military Service Act and Section III of the Instructions to Tribunals as to voluntarily attested men), it is not open to the asylum authorities to make application for the retention of an attendant's services *qua* such, or to the Tribunal to grant exemption, unless such application has been supported by a recommendation from this Board; because, apart from such recommendation, attendants in asylums do not fall within the class of exempted occupations.

I am to say that as regards Division 2, in making their recommendations for exemption the Board did not contemplate that Asylum Authorities would, in fact, endeavour to obtain exemption for any men in whose cases the Board had not felt justified in making a recommendation.

While, from their several circular letters and the interviews they have had with many of the asylum authorities concerned, the Board's attitude towards the matter is, it is hoped, generally understood, I am to say that, in the exercise of their functions under the Military Service Act, the Board's duty has been a divided one—first, to ensure that no asylum should either be without a sufficient number of trained able-bodied attendants, and, second, to facilitate the release of the maximum number of men, compatible with the safety of the institution, for service in His Majesty's Forces. Due regard to the urgent needs of the latter fully justifies, in the Board's opinion, risks being faced, amenities being curtailed which would not be permissible under ordinary circumstances, and a reduction in the high standard of comfort and efficiency which has very properly characterised asylum management for so many years.

The Board regret intensely to be obliged to take up this position, which they realise to the full must, in addition to causing anxiety and difficulties to Visiting Committees and Medical Superintendents, react unfavourably to some extent on the patients; but it is confidently hoped that this set-back will only be of a temporary character and that its duration will best be shortened by the prompt release, for the service of their country, of the maximum number of those who are likely to make efficient sailors and soldiers.

I am to add that in case of any untoward event occurring, which is shown to be due to the depletion of the male nursing staff, the visiting committee concerned can rely upon the active support of the Board, who, in the circumstances, must indeed be regarded as primarily responsible.

I am, Sir, your obedient servant,
(Sgd.) O. E. DICKINSON, *Secretary*.

The Acting Hon. General Secretary,
Medico-Psychological Association of Great Britain and Ireland.

IRISH DIVISION.

THE SPRING MEETING of the Division was held by the kind invitation of Captain Benson at Farnham House, Finglas, on April 6th, 1916.

The following members were present :

Dr. Hetherington, Dr. Drapes, Dr. J. O'C. Donelán, Dr. Rainsford, Captain Lawless, Captain Benson, Dr. W. Eustace, Dr. Leeper (Hon. Secretary).

Dr. Hetherington having been moved to the chair, and before the business was proceeded with, the Chairman drew the attention of the members to the loss the Division had sustained by the death of Dr. O'Neill, Superintendent of Limerick Asylum. Dr. O'Neill was always a regular attendant at the meetings of the Division. The following resolution was proposed by Dr. Drapes, seconded by Dr. Rainsford, and passed in silence, the members standing in their places :

"That the members of the Irish Division desire to record their sincere regret at the loss the Association has sustained by the death of their late esteemed friend and colleague Dr. O'Neill, and wish to tender an expression of their sympathy to the members of his family in their bereavement."

The Hon. Secretary was directed to forward a copy of the resolution to Dr. O'Neill's family.

The minutes of the previous meeting were read and signed, and some correspondence dealt with. On a ballot for the office of Hon. Secretary and two representative members of Council for the Division being held, Dr. Leeper was elected Hon. Secretary, and Drs. Nolan and Rainsford were unanimously elected representative members of Council for the ensuing year.

Dr. Rainsford and Dr. T. Adrian Greene were elected examiners for the Association's Certificate in Psychological Medicine.

Joseph O'Carroll, M.D., F.R.C.P., Physician, Richmond and Whitworth Hospitals, Lord Chancellor's Visitor in Lunacy, and Allan S. Grimby, B.A., Lieut. R.A.M.C. (S.R.), M.B.Univ.Dub. (unconferred), Assistant Medical Officer, St. Edmundsbury, Lucan, were both unanimously elected members of the Association.

The following dates were fixed for meetings of the Division for the ensuing year :

Autumn meeting, November 2nd.

Spring meeting, April 5th, 1917.

Summer meeting, July 5th, 1917.

It was decided that the summer meeting should be held at Ballinasloe Asylum, at the kind invitation of Dr. Kirwan.

After somewhat lengthy deliberation it was decided that at the autumn meeting of the Division a discussion would be introduced by Dr. W. Eustace upon "General Paralysis of the Insane," with especial reference to recent modes of treating the disease.

Dr. Rainsford proposed and Dr. Drapes seconded a cordial vote of thanks to Captain Benson for his kindness and hospitality in entertaining the members of the Division. The Chairman, in putting the resolution to the meeting, which was passed by acclamation, remarked that all the members felt greatly gratified by the kind action of Captain Benson, who had come back from his military duties expressly to be with them, and for the hospitality they had all received.

Captain Benson having replied, and having expressed the wish that the Division should revisit him, the proceedings terminated.

SCOTTISH DIVISION.

A MEETING of the Scottish Division of the Medico-Psychological Association was held in the Hall of the Royal Faculty of Physicians and Surgeons, St. Vincent Street, Glasgow, on Friday, March 17th, 1916.

Present : Drs. Buchanan, Carre, Clarkson, Crichtlow, Donald Fraser, Henderson, Hotchkis, Keay, Kerr, Ivy Mackenzie, Oswald, Richard, Jane Robertson, Ferguson Watson, Yellowlees.

Lieut.-Colonel Keay occupied the chair.

The CHAIRMAN stated that Dr. Campbell, Divisional Secretary, was prevented, owing to illness, from being present at the meeting, and that Dr. Campbell had arranged with Dr. Clarkson to act as Secretary at the meeting.

The minutes of the last Divisional meeting were read and approved, and the Chairman was authorised to sign them.

Apologies for absence were intimated from Drs. Carlyle Johnstone, Turnbull, Easterbrook, Alexander, and Tuach Mackenzie.

The SECRETARY submitted a letter of acknowledgment received from Lady Clouston, thanking the members of the Division for the kind letter of sympathy sent to her.

Drs. J. C. Orr and C. C. Easterbrook were unanimously elected Representative Members of Council for the ensuing year, and Dr. R. B. Campbell was elected Divisional Secretary.

Dr. R. Dods Brown was nominated as an Examiner for the Certificate in Psychological Medicine.

The following candidate, after ballot, was admitted to membership of the Association: William Blackley Drummond, M.B., C.M.Edin., F.R.C.P., Medical Superintendent, Baldovan Institution, Dundee; proposed by Drs. Campbell, Clarkson, and Keay.

Dr. D. K. HENDERSON read an interesting paper on "Catatonia as a Type of Mental Reaction," which was discussed by Drs. Yellowlees, Fraser, Hotchkis, and Ivy Mackenzie. (A copy of the paper will appear in the July number of the Journal.)

Dr. D. K. HENDERSON also showed three cases of organic brain disease (syphilitic), which were interesting from the point of view of onset, symptomatology, and course.

(1) A depressed, self-accusatory, vague hallucinatory state in a man, æt. 57, who had well-marked physical signs of *tabes dorsalis*. The points which seemed to warrant one in keeping the case separate from the usual case of general paralysis were (1) the age of the patient; (2) the content of the psychosis; (3) excellent preservation of memory; (4) retention of personality as evidenced by good insight and judgment; (5) on the physical side—relative intactness of speech and writing, and a negative Wassermann reaction both in the blood and cerebro-spinal fluid.

(2) A woman æt. 46, who was first admitted to the Glasgow Royal Mental Hospital in April, 1898, with acute hallucinosis. At that time she had certain physical signs indicative of *tabes dorsalis*. She made a good recovery, worked efficiently for four years, and then was re-admitted in 1902 in a euphoric, grandiose state, and with very well-marked signs of *tabes dorsalis*. At the present time she shows considerable mental deterioration, but her general health is well maintained, and the Wassermann reaction is negative both in blood and cerebro-spinal fluid. The initial state appears to have been a psychosis, not general paralytic picture, associated with *tabes*, but now the condition has progressed, and the case is one of tabo-paralysis.

(3) In contrast to the above two cases, this case is one of tabo-paralysis in which the *tabes* and the paralytic process developed coincidentally. The case, however, is now of eleven years' duration, the memory is splendidly preserved, and the Wassermann reaction is negative both in the blood-serum and cerebro-spinal fluid.

Dr. JANE ROBERTSON read an interesting paper on "The Higher Type of Mental Defective," which was discussed by Drs. Henderson, Clarkson, and Yellowlees. (A copy of the paper will appear in the July number of the Journal.)

A vote of thanks to the Chairman for presiding concluded the business of the meeting.

MENTAL AFTER-CARE ASSOCIATION.

REPORT OF THE COUNCIL (ABRIDGED).

From January 1st to December 31st, 1915.

THE Council of the Mental After-Care Association for Poor Persons Convalescent or Recovered from Institutions for the Insane again has pleasure in presenting the Annual Report.

The work of the Association, in spite of the war, has progressed satisfactorily, and the Council takes this opportunity of thanking those subscribers who have continued or, in one or two instances, increased their contributions, and also those who have rejoined in response to the appeals sent out early in the year. As it is impossible to hope to arouse much fresh interest during the war, and meetings are deemed inadvisable, the continued support of all donors is earnestly requested, and it is suggested that each subscriber might endeavour to secure one new subscriber of at least five shillings per annum. This would relieve the Finance Committee of their possible anxiety respecting loss of income formerly received from those who have found it necessary to retire from the list of subscribers.

The Council feel that this unique charity, which is doing work untouched by any other Association, should appeal to all those who have true philanthropy at heart. The cases are very sad, often exceptionally difficult, and many patients would have no possibility of relief from their perplexity or trouble but for the help of this Association. That the work is greatly appreciated by those for whom it is intended is abundantly proved by the willingness with which they endeavour to pay part, and sometimes the whole, of the expenses incurred in giving them their fresh start in life, and by the way in which those who have been previously helped, frequently of their own accord, when in happier circumstances, send donations to help other cases.

Staff.—The Council has the deepest regret in announcing that owing to ill-health, which has prevented Mr. Thornhill Roxby from taking an active part in the work of the Association for nearly fifteen months, he has felt it imperative to resign the Secretaryship of the Association, which he has held for twenty-eight years. Throughout the whole of that period Mr. Roxby has worked in the most indefatigable manner in the interests of the Association. In addition to the heavy routine work, he has gone to much expense of time and money in visiting distant asylums in the endeavour to interest the Medical Superintendent and others, in establishing local branches and in arranging local meetings. Much effort has also been expended in the visiting and inspecting in various localities of Cottage Homes, on the character of which so much of the success of the work depends. Mr. Roxby's self-sacrificing devotion in these and other ways has very materially contributed to the success of the Association. The Council, in accepting Mr. Roxby's resignation, tender to him their high appreciation of his work during so many years, and express the hope that, with restored health, he may continue to take part in the work, to the success of which he has so largely contributed.

The Staff, under the direction of Miss Vickers, who throughout the year has carried on the work of Secretary, has most successfully continued the activities of the Association, and has dealt equally successfully with the new work arising from the inclusion in the scope of our efforts of patients discharged on trial from asylums, and the increased inquiry work entailed by the arrangement in relation to the Adelaide Fund, alluded to elsewhere.

The Council has unanimously decided to appoint Miss Vickers to the Secretaryship vacant by the resignation of Mr. Thornhill Roxby, and is confident that from her long familiarity with the work of the Association, and the efficient way in which she has carried it on during his absence, they are fortunate in securing her services.

Cases.—During the past year applications on behalf of 379 persons were received; of these, 270 were women and 109 were men. This total is only 6 more than in 1914, but as 46 more women applied than in the preceding year, it seems likely that, had the conditions of the labour market been normal, there would have been a correspondingly large increase in the number of men helped. The result of the work has been very encouraging.

The finding of suitable occupations for persons who, although recovered, would probably have great difficulty in restarting in life, is one of the most important functions of the Association. The bestowal of a large amount of personal care and individual attention to each patient is necessitated, and careful investigation of the suitability of those with whom he is placed. The result of this part of the work is far greater than the mere supplying of temporary homes, clothing, or grants for maintenance and tools, important though these may be. The strongest possible evidence of the utility of this charity is shown not only in the comfort and aid given, but in the prevention of relapse, many who have had previous attacks remaining well since they have been under the influence of the staff of the Association.

Although only 379 were considered by the Council, this total does not at all represent the number dealt with, as a large number of old patients wrote to or called at the Office during the past twelve months, none of whom are included in the above total.

Although suitably restarted in various spheres of work, many also require and seek counsel from time to time. Advice is freely given enabling such patients to overcome their difficulties satisfactorily, and tending to prevent mental strain, which is particularly undesirable in the cases with which the Association deals.

Conference with the L.C.C. Asylum Board.—After some correspondence, it was arranged that a conference should be held at Spring Gardens, on Monday, November 25th, when Lady St. Heliers presided, and this Association was represented by the Chairman (Dr. Rayner), Dr. Percy Smith, Mrs. Marriott Cooke, and the Assistant Secretary. Mr. H. F. Keene, Clerk to the L.C.C. Asylum Committee, explained that the Trustees of the Queen Adelaide Fund wished to approach the Mental After-Care Association with a view to its co-operation with them to ensure a more useful distribution of that fund. It was suggested that in future this Association should be asked to visit all cases discharged from the L.C.C. Asylums, where there existed any doubt as to the advisability of a grant or as to its amount. It was felt that the wide experience of this voluntary Society would be useful in visiting and reporting on the home conditions of such cases, and although this will, it is hoped, eventually mean a largely increased scope of work, the Council at their next meeting unanimously agreed to adopt the suggestion.

It is hoped that this scheme will be in working order early in 1916.

Vice-Presidents.—During the year the Association lost a valued friend and supporter by the death of Mr. H. D. Greene, K.C., but the Council is glad to state that Mrs. H. D. Greene has kindly taken an interest in the work and promised to become an annual subscriber. Canon Gildea, D.D., a Vice-President, has also passed away.

Council.—The Council received with much regret the news of the death of Sir James Moody, for a very long time one of their number, who had taken much interest in the work from its earliest years. Miss M. G. Wilde, Poor Law Guardian (Kensington), has kindly consented to fill one of the vacancies.

A list of a large number of institutions from which cases have received assistance from the Association is appended, and the Report concludes with acknowledgments to various bodies for their support, including the Corporation of London and a number of the City Companies, several Boards of Guardians, mostly in the neighbourhood of the Metropolis, with a few more distantly located, and the Guild of Help; also some asylums where collections are regularly made on behalf of the Association, and a few parishes in which contributions from the offertory funds have been allocated to the same good object.

The Association serves a quite unique and beneficent purpose, which no other charitable organisation fulfils, and deserves wider and more general recognition from all those who have the welfare of the mentally afflicted at heart. Its President is the Earl of Meath, Dr. Henry Rayner its Chairman, with Miss Vickers as Secretary.

OBITUARY.

DR. C. S. MORRISON.

THE death of our late colleague while he had scarcely passed the prime of life occasioned the sincerest regret on the part of his medical brethren and of those of the public who had the privilege of knowing him. The following tributes to his worth on the part of friends who knew him well have already appeared in the local press, and we feel we cannot do better than reproduce them here:

"With great regret we record the death of Dr. Cuthbert Stanislaus Morrison, Medical Superintendent of the Hereford County and City Asylum, who, after an illness extending over several months, passed away on December 17th, 1915, at Clifton, Bristol, whither he had gone for the benefit of his health. Fifty-five years of age, he leaves a widow but no family, and for Mrs. Morrison in her bereavement the greatest sympathy will be evoked.

"The late Dr. Morrison was compelled to relinquish his duties at the asylum in July last owing to a complete breakdown in his physical condition, brought on by extra strain caused by additional work thrown upon him by the call for doctors for the war, coupled with a large transference of patients from Cardiff, also necessitated by the war, on account of the accommodation there being required for wounded soldiers. This influx occurred in May, and brought the total number of patients at Burghill Asylum up to nearly 600, of which some 70 were from South Wales. The reception of these patients and the work entailed in becoming acquainted with the nature of the individual cases naturally imposed much additional responsibility on the Superintendent, whose health had already become

indifferent. As a matter of fact, but for these pressing duties, Dr. Morrison would have taken leave at an earlier date, which would probably have had the effect of prolonging his life. The Committee of Visitors, who manage the asylum, recognised his need for recuperation, and were quite ready to grant him extended leave for the purpose, but the doctor's high sense of devotion to duty would not permit of his doing other than remaining at his post under the special circumstances. Dr. Morrison was regarded by the Visitors as an extremely capable superintendent, with not only a highly scientific, but also a practical, turn of mind, which showed itself in various ways, much to the advantage of the economical working of the institution, and, more satisfactory still, the benefit derived by the patients. That his loss at the age of fifty-five will be very much deplored by the Asylum Visitors need hardly be said, and those of the patients who are in a condition to appreciate kindly and efficient treatment will likewise realise that they have lost a good friend. One is supported in this by the fact that cases have been by no means infrequent in which discharged patients have taken the trouble to write to the late Superintendent acknowledging with gratitude the benefit they have received while temporary inmates of the institution over which he presided with distinguished success.

"By the members of the medical profession in the city and county his great capabilities as a mental specialist were recognised and highly appreciated, and though he was not a man who sought to make many friendships—the nature and extent of his duties hardly permitted of this—yet those he did make were deep and lasting; and those who were closely acquainted with him held his forceful character in the highest esteem.

"Dr. Morrison received his medical training at Edinburgh University, where he qualified in 1888, and where he was late demonstrator in anatomy. He was appointed assistant medical officer at Hereford County and City Asylum, before securing a similar post at the Derby County Asylum; in later years he was destined to return to his first love. This was some twenty-four years ago, when he took the place of Dr. Morris as senior assistant under Dr. Chapman. About four years later Dr. Chapman resigned; Dr. Morrison was selected from among a large number of highly qualified applicants as his successor, and thus held the post of Superintendent for about twenty years. He was shortly due to retire on a full pension. He wrote voluminously and with much force and enlightenment on mental diseases. 'The Inference of Local Degeneracy by Comparison with the Vital Statistics of its People,' which appeared in the *Journal of Mental Science* in 1907, attracted much attention. A Fellow of the Royal Society of Medicine, he was also a member of the Medico-Psychological Association, in whose affairs he took a keen interest. In 1911 Dr. Morrison became Vice-president of the section for Neurology and Psychological Medicine of the British Medical Association. Of the Hereford and Worcester Branch of this body he was also an ex-President, and for many years acted as Hon. Secretary. On one or two occasions he came into the public eye. Once it was in connection with the Aymestrey murder trial, when the prisoner Haywood was sentenced to death for killing his wife. Dr. Morrison gave evidence for the defence as regards the prisoner's mental condition. A man must have been insane to commit such a diabolical crime as was laid to his charge, the doctor urged; but the jury found other circumstances to outweigh his evidence. The doctor held strong views on the relation of alcohol to mental disorders, and emphatically protested against the practice of some parents in the rural districts of giving cider to their children as part of their midday meal. Dr. Morrison was an adherent of the Roman Catholic faith. He was present at the sacerdotal jubilee celebration of the late Bishop Hedley at Belmont, some years ago, and had the privilege of doing honour to the venerable prelate in the recognised episcopal form."

"AN APPRECIATION BY A MEDICAL COLLEAGUE.

"By the death of Dr. C. S. Morrison the medical profession of this county has lost one of its most popular and distinguished members. Although it was generally known that his health had not been satisfactory for some time, it was confidently hoped that a prolonged rest from his arduous duties as Physician-Superintendent of the County and City Asylum would restore him to his former vigour, and bring him back amongst us for further usefulness. To the great

regret of all his friends this hope has not been realised, and we have to deplore his demise at a comparatively early age.

"In the profession generally, and also in the medico-psychological branch of it, Dr. Morrison was regarded as a sound authority in his speciality and a successful superintendent and administrator. He was for many years a prominent member of the Medico-Psychological Association and the British Medical Association, and for a considerable period he acted, with much acceptance, as Secretary to the Herefordshire and Worcestershire Branch of the latter body, and quite lately as its President.

"In 1911 he was Vice-President and Secretary of the Neurological Section at the annual meeting of the British Medical Association, and he also gave valuable service to the old-established Herefordshire Medical Society. In these capacities he proved himself to be a man of many parts and generous sympathies.

"During his occupancy of the office of Superintendent at Burghill he saw great additions and improvements, with every one of which he was associated and for which he had unflinchingly laboured, thinking always of the comfort and well-being of the unfortunate people under his charge. For the welfare of the institution he gave of his very best, and so high was his sense of duty, that even trivial details were not deemed too unimportant to engage his personal attention. The result of such devotion to duty, and the extra strain in several directions which he lately encountered no doubt contributed largely to his breakdown in health. In the committee room and at Association meetings Dr. Morrison was a forceful and convincing speaker. He upheld his views strongly when once convinced that they were sound, and was not slow to unmask anything which savoured of opportunism. Whatever he undertook he did it with all his might, without a thought of self or reward. Dr. Morrison did not make a great many really intimate friends; but to the few who had the privilege of his intimacy he gave the firm hand of friendship which lasted for all time. His was a large-hearted and generous nature which radiated sympathy and kindness to all those who came within its reach. Upright, unselfish to a fault, with a high sense of duty and universally beloved, he possessed a personality which will live in the memory of all who knew him."

DR. W. H. MACFARLANE.

On August 2nd, 1915, from heart failure, Dr. W. H. Macfarlane, Medical Superintendent of the Hospital for the Insane, New Norfolk, Tasmania. (Communicated by Dr. G. F. Read.)

CORRESPONDENCE.

To the Editors of THE JOURNAL OF MENTAL SCIENCE.

SIRS,—Dr. Mercier, in your January issue, defines "cause" as "the necessary connection between an action and the sequent change, or accompanying unchange, in the thing acted on." He had previously suggested that any circumstance which prevents a change should be called the "reason" rather than the cause of the "unchange." This is a good distinction, though it seems to put out of action the alternative clause in his definition. I do not, however, write to find fault, but to show how it is possible to come still nearer to the basis of the idea of causation by recognising yet another distinction—namely, that between cause and occasion. For example, in the case of Newton's traditional apple, the cause of the fall was gravity, the occasion was doubtless the giving way of the stalk. The following considerations will explain the distinction and show its importance.

Change is not supposed to take place *per saltum*; it is always regarded as a continuous process. A process of change in any system may be called complete when it begins from one state of static equilibrium and ends in another such state. Every process takes place by virtue of an expenditure of energy, and (when the whole of the system involved in a complete process is taken into account) the potential energy of the final state is always less than that of the initial state. Any process may be considered under two aspects, either (1) as a change *from* the equilibrium of greater potential energy, or (2) as a change *to* the equilibrium of less potential energy. Under the former aspect it is called the cause; under the latter aspect it is called the effect.

The relation between cause and effect being that of different ways of looking at the same process, we have next to trace the relation between "occasion" and "consequence."

A balanced system may have its equilibrium either stable, or unstable; in neither case can it begin to change without external interference, yet there is a marked difference between the two. If the equilibrium be stable the system has no potential energy, and any process of change which it undergoes must be the equivalent of (*i.e.*, be *caused* by) the process of change in another system which may, for purposes of calculation, be merged with it into a single composite system.

On the other hand, when a system is in unstable equilibrium, it does possess potential energy, and if the balance be upset by the action of another system this potential energy may be liberated, and a process of change may be initiated which has no equivalent in the disturbing system. The changes in the two systems are then related, not as cause and effect, but as "occasion" and "consequence." For example, in a motor engine the movement of the machinery is the equivalent of, and *caused* by, the motion of expanding gas in the cylinders, and the expansion, again, is *caused* by the combination of the petrol with the oxygen of the air, which supplies all the energy; but this combination is *occasioned* by the ignition, which has little energy of its own, yet liberates a large quantity of potential energy from the unstable mixture of air and petrol.

GEORGE SHANN.

To the Editor of THE JOURNAL OF MENTAL SCIENCE.

DEAR SIR,—You will remember that in a weak moment I consented to review some psychoanalytic literature for the Journal. In response to your request for a paper for the Journal I find that the style of psychoanalytic writers has so infected my mind that I am unable to write anything but the following, which I am afraid you will regard as a descent from the sublime to the ridiculous (sublimation).

Your unhappy contributor,

X.

THE PSYCHOSES.

It is entirely owing to the wonderful discoveries of the great master mind of the day (Freud) that we owe the fact that the psychoses are now understood. For did he not show us the way that when discussing paranoia a case of dementia præcox should prove useful as an example? When an idea rises into consciousness it is apt to be repressed into the preconscious, and finally submerged in the unconscious, with at least one censor and sometimes two ready to pounce upon it should it raise its unhappy head.

Our critics who fail to understand our position weakly ask for some proof of such a statement. Thereby they show their ignorance and unwittingly reveal that they themselves are suffering from unconscious complexes. If they refuse to look down the telescope of Galileo psychoanalysis cannot be held accountable. Besides this there are numerous cases in the literature which can be made to prove anything you like if only apperceived from the proper view-point. As a paradigm the following case may be quoted:—

A boy of six years of age, physically healthy, suddenly developed an acute psychosis lasting a few hours, with great depression, emotivity, and stereotyped movements. The family history revealed little of importance, except that a maternal grandfather had developed arcus senilis at the age of 70. The anamnesis was that one afternoon he earnestly desired some chocolates, the property of his little sister. Undeterred by parental warning a conflict ensued. He seized the chocolates (wish-fulfilment) and greedily ate them, while his little sister cried bitterly. He did more, for he repressed the dearly-beloved doll of the sister into the water-butt at the corner of the house. On the return of his father from the city the boy denied having stolen the chocolates, and even if he had taken one or two, said he, it was because they were bad for the sister (rationalisation). Punishment was decided upon and duly administered by the father, during which the symptoms of agitation, stereotyped movements, etc., made their appearance. In addition a strong hatred-of-father complex appeared (Œdipus complex), which lasted about the same length of time as the symptoms just detailed. The psychosis lasted but

a few hours in this case, but the boy, who was polymorphous-perverse, sublimated his libido by teasing the cat, and recovery ensued. Such a case as this proves the value of psychoanalysis, for had he been psychoanalysed he would undoubtedly have recovered. That he was not psychoanalysed was not the fault of psychoanalysis, but because of the fact that no psychoanalyst was on the spot. I could go on writing like this for yards if you like. ["Please don't."—EDITOR *J. M. S.*]

BALLINASLOE ASYLUM.

IN publishing the following item of news, which appeared in the daily press in Ireland, we think it only fair to express our conviction that the deplorable state of things described as existing in Ballinasloe Asylum is altogether exceptional as regards Irish asylums generally. The fact that both the Medical Superintendent and the Senior Assistant Medical Officer are absent on military service may possibly be regarded as an extenuating circumstance. But, while admitting that some derangement of management may have been due to this cause, it is difficult to account for such a general demoralisation of an asylum staff as would permit of the occurrence of the reprehensible conditions disclosed in the Inspectors' report. We shall await with interest the result of the sworn inquiry which is to be held into the circumstances:

BALLINASLOE LUNATIC ASYLUM.

The Inspectors' Report.

Sworn Inquiry asked.

(From our Correspondent.)

Ballinasloe, *April 3rd.*

At the meeting of the Ballinasloe Asylum Committee to-day the report of the Lunacy Inspectors on their recent inspection of the institution was read. It stated that the patients in some of the male and female divisions were huddled together, practically naked, in a cold ward, lying on wet straw, and the condition of things was scandalous. They did not think that in any civilised country such a condition of things existed as they found in the wards visited. It was hard to realise that creatures who could neither speak nor act for themselves would be left in such a manner.

The Chairman said it was a very strong report.

Mr. Millar asked who was responsible for the awful state of things.

The Clerk said that Dr. Kirwan, R.M.S. (who was in the R.A.M.C.), had said that it would take £3 nightly to keep clothes on the patients and furniture in the divisions referred to.

The Acting R.M.S. (Dr. English) said that she was not aware that the patients were treated in the manner stated, and it had never been reported to her. The proper thing was to hold an inquiry.

It was decided to call for a sworn inquiry on the Inspectors' report.

ASYLUMS ROLL OF HONOUR.

WE have been requested by Dr. Tighe, of Gateshead Borough Asylum, to state that Dr. Hubert Shield, First Assistant Medical Officer, joined the R.A.M.C. in November, 1914, and that fourteen members of the male staff have joined the colours.

[This should have appeared in the January issue of the Journal, and we regret that it was omitted through oversight.—ED.]

THE LIBRARY.

MEMBERS of the Association are reminded that the Library at 11, Chandos Street, W., is open daily for reading and for the purpose of borrowing books. Books may also be borrowed by post, provided that at the time of application threepence in stamps is forwarded to defray the cost of postage. Arrangements have been made with Messrs. Lewis to enable the Association to obtain books from

the lending library belonging to that firm should any desired book not be in the Library. In addition, the Committee is willing to purchase copies of such books as will be of interest to members. Certain medical periodicals are circulated among such members as intimate their desire to be included in the list.

The Committee desires to record the following recent additions to the Library:

Donations.—A complete set of *Brain*, presented by Dr. MacDonald; *The New Psychiatry*, by W. H. B. Stoddart, presented by the Author; *The Physical Basis of Will*; *Common Source of Error in Seeing and Believing*; *Introductory Lecture, University College*; *Heredity Variation and Genius*, also an *Essay on Shakespeare*, and an *Address on Medicine*, by H. Maudsley, presented by the Author, per Dr. Rayner.

Purchases.—*Dreams* (1915), by H. Bergson; *Interpretation of Dreams* (1913), by S. Freud; *Sixty-fourth Annual Report, Inspectors of Lunacy, Ireland* (1915).

Applications for books should be addressed to the Resident Librarian, Medico-Psychological Association, 11, Chandos Street, Cavendish Square, W.

Other communications should be addressed to the undersigned at the City of London Mental Hospital, Dartford, Kent.

R. H. STEEN,
Hon. Secretary, Library Committee.

NOTICES BY THE REGISTRAR.

Nursing Examinations.

Preliminary Monday, May 1st.

Final Monday, May 8th.

Professional Examination Certificate in Psychological Medicine and Gaskell Prize, first week in July.

Essays for Bronze Medal must be sent to Registrar on or before June 14th.

NOTICES OF MEETINGS.

The next General Meeting will be held at 11, Chandos Street, Cavendish Square, W., on Tuesday, May 16th, 1916.

The date and place of the Annual Meeting will be fixed at the Quarterly Meeting on May 16th.

Irish Division.—July 4th, 1916; November 2nd, 1916.

The Annual General Meeting of the Asylum Workers' Association will be held at 11, Chandos Street, Cavendish Square, W., on Wednesday, May 17th, 1916, chair will be taken at 3 p.m. by Sir John Jardine, Bart., K.C.I.E., M.P., LL.D., President of the Association.

The Annual Report will be submitted, Officers elected, and Presentations will be made of Medals for Long and Meritorious Nursing Service.

Matters of much importance to Asylum Workers will be discussed, and it is hoped that there will be a large and representative gathering of members and friends of the Association.

Tea and coffee after the meeting.

J. F. POWELL, M.R.C.S.,
Hon. Sec.

APPOINTMENTS.

Erskine, W. J. A., M.D.Edin., Medical Superintendent of the Isle of Wight Asylum, Newport.

Graves, T. C., M.B., B.S.Lond., Medical Superintendent of the Hereford County and City Asylum, *vice* Dr. Morrison, deceased.

Fulton, Miss J. M., M.B., Ch.B., R.U.I., Assistant Medical Officer, Barming Heath Asylum, Maidstone.

Irwin, Peter Joseph, L.R.C.P.I.&L.M., L.R.C.S.I.&L.M., Medical Superintendent, District Asylum, Limerick.

Fitzgibbon, Michael Joseph, L.R.C.P.I.&L.M., L.R.C.S.I.&L.M., Assistant Medical Officer, District Asylum, Limerick.



G. T. HINE, F.R.I.B.A.

Adlard & West Newman.

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VOL. LXII.

Part I.—Original Articles.

Occasional Notes on the Mental Deficiency Act. By Sir
BRYAN DONKIN, M.D.Oxon., F.R.C.P.

THE purpose of this article is to review briefly a few of the many questions that have arisen directly or indirectly out of the interest taken of late years in the matter of the care and control of the feeble-minded, and to comment on some of the aspects of the legislative measure, known as the "Mental Deficiency Act," which has ultimately resulted from that interest. Some reflections by the way on this subject, about which at the present moment there is necessarily but little practical activity, may, I trust, be regarded as not wholly inopportune. In offering to the readers of this Journal the following remarks on some difficulties that have been raised regarding the interpretation and working of the new Act, and in noting certain misconceptions and more or less irrelevant discussions that seem to have obscured the practical side of the subject, I have but the excuse of a long-continued interest in the matter of the due recognition of mental failure in all its varieties, and of my personal experience, gathered from the study of criminals, touching the part played by mental defect or disorder as a factor in the production of crime. These notes, which are at least meant to be practical, will therefore tend to circle chiefly round the questions of the actual diagnosis of such mental defect in persons of all ages as is now officially

VOL. LXII.

30

registered under the term "mental deficiency," and of the relation that seems to exist between mental defect generally and criminality.

Before taking in detail the special points needing comment, a short account of the happenings that led up to the passing of the Act of 1913 may be useful, seeing that now, for the first time, a legal import has been given to the term "mental deficiency." We need not look back further than to the beginning of the present century, when the National Association for Promoting the Welfare of the Feeble-minded, the Charity Organisation Society, and some other bodies, strongly urged upon the Government their belief that a great need existed for placing under care and control large numbers of both children and adults, who, by reason of mental defect, were harmful to themselves or others, but, although neglected and at large, were neither certified, nor deemed certifiable, under the law of lunacy. As a result of a Conference, appointed by the Home Office, on which several departments of Government and other authorities were represented, a Royal Commission was charged in 1904 to inquire into the whole matter. The reference given to this Commission having a distinct bearing on certain points to be mentioned presently, it seems useful to recall it as follows: "*To consider the existing methods of dealing with idiots and epileptics, and with imbecile, feeble-minded, or defective persons not certified under the Lunacy Laws; and in view of the hardship or danger resulting to such persons and the community from insufficient provision for their care, training, and control, to report as to the amendments in the law or other measures which should be adopted in the matter . . . ; and also to inquire into the constitution, jurisdiction, and working of the Commission in Lunacy and of other Lunacy Authorities in England and Wales, and into the expediency of amending the same or adopting some other system of supervising the care of lunatics and mental defectives, and to report as to any amendments in the law which should, in their opinion, be adopted.*"

The Royal Commission, after a long and minute inquiry, reported in 1908. The following points in the Report, immediately relevant to my purpose, alone concern us here. *First*: The actual recognition of a large class of "mental defectives" (thus specified in the reference) who were not certified under the Lunacy Laws, but required care and control,

Second: The finding that the largest class of such uncertified persons consisted of "mental defectives" to whom the term "feeble-minded" had been widely applied, at least in this country, in distinction from the lower and more easily recognised grades known as idiots and imbeciles, many of which could be, and some were, certified under the existing laws. *Third*: The recommendation that the widely and duly comprehensive term "mental defect" should be adopted as the title of a new Act intended to cover all cases of mental failure that needed care and control, while retaining as far as possible, and somewhat clarifying, the existing terms now applied to "insane persons and idiots," and bringing in, as by far the chief addition to the content of the Act, the important group of "feeble-minded" as indicated above.⁽¹⁾

The adoption of the first two of these conclusions forms the kernel of the new Act, and it is abundantly clear that the term "mental deficiency" or "mental defect," as now used in the Act, practically denotes such persons as were not, and are not now, certifiable under the existing Lunacy Act. The third conclusion, or rather recommendation, arrived at by the Commissioners with a view to some amendments of the laws regarding mental defect generally on a logical and practical basis, was, in my judgment, unfortunately and unreasonably rejected in the drafting of the Bill which ultimately became law in 1913. The Act, as it now stands, tends to lead to the drawing of an inappropriate line between "mental defect" and insanity, while it leaves at least the lowest grade of the "deficient" group, *i.e.*, that of "idiots," to be dealt with indifferently under either the new or the old Act. One of the consequences of this decision has been that the new Board of Control is, in effect, composed of two parts, *viz.* (1) the pre-existing Commissioners in Lunacy, and (2) some additional members, constituting a small minority of the Board, who were appointed specially to deal with the subjects of the new Act of 1913. I cannot but think that this want of coherent unity in the constitution of the new Board may probably account for a considerable part of the difficulties that have been felt in the working of the Act.

I. The first misconception to be noted out of those that may have been, either directly or indirectly, occasioned by the Act, is possibly in some degree attributable to the very title of the

Act itself, in which, as I have just said, the general term of "mental defect" is used to denote only a certain class of persons who are defective in mind. Such a use of these words is certainly unscientific and likely to mislead. All "insanity," "mental unsoundness," "mental disorder," "mental deficiency," from whatever cause arising, involves, of course, defect in mind. The only practical distinction between the new and the old certifiabiles is that the former are mainly the subjects of such defects as are described in the first section of the new Act, and the latter mainly such as are named, but, be it noted, *not further described*, in the Lunacy Act, as "persons of unsound mind." These two groups, indeed, roughly correspond to the old dichotomy of "lunatic" and "idiot"; the first indicating him who has been, but is no longer, *compos mentis*; the second, him who is *fatuus naturalis* or *a nativitate mente captus*. In modern days this distinction is commonly made by the use of the popular but inaccurate terms, "acquired" and "congenital." In former times some legal distinction was set up between the two groups of cases comprised then under the comprehensive and correct term of *non compos mentis*, which may well be translated "mentally defective"; for there were distinct writs of *de idiota inquirendo* and *de lunatico inquirendo*. This differentiation was abolished many years ago; but now we have again two separate legal instruments, each professing to concern distinct groups, but nevertheless showing by their contents that some cases are dealt with indifferently by both.

However little the title of the Mental Deficiency Act may be credited with causing the particular misconception now to be noted, some commentators on the Act have fallen into the surprising error, avoidable, it should seem, by even a small acquaintance with the ordinary terms of psychology, of using the words "mind" and "intelligence" as synonymous. Some, on the one hand, have drawn the conclusion that the practical recognition of mental defect depends on intellectual tests alone, while, on the other hand, those responsible for the Act have been accused of ignoring the fact that "true mental defectives" do not form the whole of the subjects whom it is proposed to control under the Act. The slightest study, however, of the first section of the Act itself will show clearly that there is no ground given in the Act for either the conclusion or the accusation. The test by observation of *conduct* is clearly

implied in the descriptions given of the various sub-groups intended to be dealt with. Moreover, it is equally clear that this test is really used implicitly in most certificates given under the Lunacy Acts, as well as in the diagnoses or opinions formed in many cases of mental disorder of any kind, even by non-specialists, or by ordinary observers. Further reference to this matter will be made later in another connection. It needs only to be said here that the word "mental" is employed in its correct and accepted psychological sense throughout the descriptions in the Act; and that it duly denominates all persons intended to be brought under the operation of the Act.

II. The introduction of questions on the nature and origin of mental defect has in various ways tended to raise unnecessary difficulties in discussing the Mental Deficiency Act, and has led to many diversions and disputes about heredity. The Act as it stands has, however, clearly excluded the only practical matters on which problems of heredity might bear, *i.e.*, the segregation or sterilisation of defectives for the main purpose of preventing their reproduction and rendering illegal all sexual intercourse with mentally defective persons. Any attempt at comprehensive treatment of the various views regarding either the causes or the modes of transmission of mental defect would be quite outside the scope of this paper, which purports to be as practical as possible. It must be recognised that, at present, legal control of the "mentally defective" is, in effect, confined to those who, left uncontrolled, either suffer themselves or are the cause of suffering to others. Those of us, therefore, who have been convinced by experience and by massive evidence that obvious incapacity for efficient mental development, like other capacities or incapacities for development, tends to "run in families," and that in a vast number of cases signs of such incapacity are observed in very early life, need not trouble ourselves, when engaged in detecting or grading cases of mental defect, either in children or adults, about any questions concerning the origin or transmission of mental defect generally. He who adheres to the Mendelian school of biologists may conceive, if he will, that "congenital" or early mental defect is due to the absence of the "unit" factor of "mental normality," and that this absence is transmitted in accordance with the Mendelian formula. The disciple of the biometrical school may regard the cases called "feeble-minded" by clinical

observers as but extreme cases of low capacity at one end of a continuous line reaching at the other end to extreme cases of high capacity. And all the biologists who reject the Mendelian doctrine of unit-segregation (whether or no they admit that mental defect tends to be transmitted on Mendelian lines), may consistently hold the opinion that such mental defect may often be a spontaneous germinal variation, possibly of the nature of a reversion, and as such transmissible; or that some cases may be due to an arrest of development, cerebral and otherwise, of later origin, including injuries and other bodily affections occurring in foetal life or at birth. Yet those who may hold these various views are not thus forced to disagree seriously about the practical recognition and certification of cases that need control under the Mental Deficiency Act. It should always be borne in mind, when discussing the question of heredity in this connection, that the Act, as we have seen, has nothing to do with the proposal of segregation of mental defectives with the express object of preventing their reproduction, although incidentally, of course, segregation for any purpose must necessarily have some considerable effect in this direction. Yet a eugenic object of this kind in the Act seems to be assumed by some critics. Prof. Pearson, for instance, in a lecture on the "Graduated character of mental defect, and on the need for standardising judgments as to the grade of social inefficiency which shall involve segregation," first assumes erroneously that those responsible for the Act regard the terms "mental" and "intellectual" as synonymous, and then proceeds to charge them with the consequent duty of obtaining accurate knowledge of the nature, definition, treatment and source of "feeble-mindedness," which term he employs as equivalent to intellectual defect. This accurate knowledge he considers necessary for the purpose of "segregating the mentally defective for life." Professor Pearson, in this lecture, admits that he has no direct experience of the mentally defective either as a medical observer or as a teacher in special schools. But in explanation of his taking this particular subject of "feeble-mindedness" as prominently illustrating his opening announcement of a "new scientific Renaissance which will cause much scientific and medical work to be looked upon only as dogma and quackery," he states that some *censores scientiarum* or watch-dogs of science are needed to warn the public against

ignorance that parades as knowledge. His own censorship in this instance amounts virtually to this : that the Commissioners who administer the Act are bound to have accurate scientific knowledge of the nature and source of feeble-mindedness, because they appear to him to have espoused the Mendelian doctrine which, he states, has so completely taken root regarding it. Now it is certainly not true that any definite theory whatever about the origin of feeble-mindedness has influenced the framers of the Mental Deficiency Act ; and it is unnecessary to insist further on the fact that any practical difficulties which may have occurred in connection with the Act's working have not been caused by such questions about the mode of origin or inheritance of mental defect as are here referred to. Doubtless it is possible that Mendelian doctrines may have partly influenced some supporters of the original movement that led up to the Act who were specially desirous of some definite enactment, directed towards the diminution, or even, as some enthusiasts seemed to think possible, the extinction of mental defect. Some explicitly "eugenic" measure might well appear to them to be favoured by the teaching that mental defect as such is hereditarily transmitted in the germ-cells as a "unit" character on a definitely detectable plan, and could, therefore, be eliminated with apparent ease by segregation or otherwise. Indeed, in a book on *Feeble-mindedness: Its Causes and Consequences*, Dr. Goddard, Ph.D., of the Training School at Vineland, New Jersey, comes to the conclusion that normal intelligence is a "unit character" transmitted in true Mendelian fashion, and that the absence of this unit-character is the "cause" of feeble-mindedness. And I have read somewhere in a serious article, of which I can recall neither place nor authorship, that "anarchists" are definite mutations and therefore ought to be prevented by law from producing offspring. Against all such unscientific assumptions as these no protest can be too strong ; and Prof. Pearson's criticisms in so far as they may concern only Mendelian doctrines as applied to this subject may be regarded as quite appropriate.

At present we have but little definite knowledge of the cerebral and other organic conditions which we believe to underlie mental manifestations generally of all kinds and grades, normal or irregular, healthy or disordered ; and we are forced to rely mainly on the clinical observation of individuals

for indications of such mental defect as seems to render it desirable or necessary that they should be placed under care or control. Some knowledge has indeed been acquired by studies of the minute histology of the brain; and the researches of Dr. J. S. Bolton, seem to indicate the possibility of demonstrating the close association of histological differentiation with individual differences of mental potentialities—an association which has, clearly, a high degree of probability *à priori*. Dr. Bolton maintains that there is a decided difference between the condition of the cortex of the pre-frontal region of the cerebrum of an “ament” and that of a “dement.”⁽²⁾ He defines, however, from the anatomical standpoint the term *Amentia* as signifying “the mental condition of a person suffering from deficient neuronc development,” and the term *Dementia* as signifying “the mental condition of those suffering from permanent disability due to neuronc degeneration following insufficient durability”; while, from the clinical standpoint, his use of these terms is apparently special to himself, and seems to depend to some extent on the histological condition he would expect to find on examination.

It is possible, again, that some future comparative study of the brains of human defectives and anthropoids may throw some light on the question whether manifest degrees of mental deficiency can be regarded as truly reversional in character; but it must be admitted at present that from the point of view of direct physical examination, and clinical investigation of cases of feeble-mindedness generally, we are without means for fixing any definite standard by which to measure accurately what we recognise as mental defect. I would insist, however, that in practice degrees of “mental defect” justifying the control of persons for the benefit either of the community or of themselves, or with both these objects in view, can be discovered in each individual case that may come in question by the study of their conduct, and capacity to learn what is fundamentally necessary for a human being to acquire in order to live sanely and safely, and more or less successfully, with his fellows; and, further, that such mental defect may justly be regarded, for practical purposes, as a recognisable condition, involving faults of mind and brain, equally with cases of what is known as “insanity,” and equally without the aid of any definite intellectual standard.

III. We come now to some difficulties that have been felt or raised in the matter of certification under the Mental Deficiency Act of both children and adults.

(1) It is to be noted, first, that the *descriptions* of the various clinical groups of persons deemed to be "defectives" within the meaning of the Act are placed prominently in the first section, and that an inference has been drawn (partly, it is possible, from this fact) that the Mental Deficiency Act requires strict demonstration that the mental defect in question has existed from birth or from an early age in any given case. It is perfectly clear that in a large number of adult cases, especially in criminals, no such absolute demonstration of the congenital or other early origin of the defect can be given ; but it seems to be no less clear that such an interpretation of the Act cannot be insisted on, and should not give rise to difficulty. The practical diagnosis of early or congenital mental defect is of course made in a large number of instances on the grounds of the similarity of the case under consideration to other cases known to be attributable to the origin in question. This statement needs scarcely any expansion. It is of general application ; and it is sufficiently illustrated by the evidence as to insanity, based on expert opinion, that is usually accepted as valid in courts of law. It cannot, indeed, be doubted that the correct diagnosis of mental defect arising from life-long incapacity is, as a rule, quite as readily made by expert observers as that of any other class of mental unsoundness. There is, it is true, nothing in the Lunacy Act that requires a certifier to state explicitly to what date he can trace back the origin of the patient's disorder ; but the absence of this condition by no means renders him exempt from difficulties quite as great, or even greater than he might encounter in the matter of certifying persons under the Mental Deficiency Act. Most expert evidence constantly accepted in law courts, not only from doctors in cases of mental and physical diseases generally, but also from witnesses on many other kinds of technical questions, consists largely of opinions based on reasoned inference. The law, of course, deals extensively with such opinions as facts, and expert counsel's opinions are frequently main factors in settling the fate, albeit not the personal liberty, of many a suitor. Instances of difficulty will doubtless arise in both groups of cases, and perhaps in the

case of "mentally deficient" adults may more often require some prolonged observations before a just conclusion is reached.

It seems to me that where the difficulty of certification now in question has really been felt, it may be partly attributed to the possibility that some of those accustomed to certify under the Lunacy Act, which contains no specialised description of the cases it deals with, have now for the first time thought that they had, in virtue of the descriptions in the new Act, to give a decision of their own based on something more than "facts" either observed by themselves or reported to them by others, and that they have thus felt themselves somewhat at a loss. It is, perhaps, also possible that an excessive tendency to juggle with words might induce a counsel to seize an opportunity which he may think this Act affords him for baffling a witness and making a score.

It would have been almost unnecessary for me to dwell on this particular point had I not met with some instances of skilled observers who hesitate to certify cases of the nature of which they are in no doubt, owing to a fear that if their opinion were at any subsequent time called in question they might be confronted with a fresh allegation which they could not directly disprove, that there was nothing the matter in early life with the subject of the certificate. It is, however, hard to see why a difficulty of this sort should be more likely to occur in the matter of this certificate than in some other questions depending on reasoned inference. Before leaving this subject I would note here that the descriptions now standing in the first section of the Mental Deficiency Act were first proposed, though in a somewhat different form, in the Report of the Royal Commissioners, and were intended to serve as *descriptions* or convenient interpretations for practical use of the current terms "idiot," "imbecile," "feeble-minded," etc., and not as strict *definitions* of separate morbid states. However, as I have said, I do not regard the difficulty in question as highly important from the practical standpoint, though I incline to think that it might not have arisen at all had the substance of the measure of 1913 been incorporated in one revised Act covering all cases that are now dealt with by two. It is to be hoped that in time this anomaly may disappear, in the interests of both science and practice, and

that the law on the whole subject may thus be uniformly interpreted and administered.

(2) The questions that have arisen concerning the due certification of young children under the new Act are on the whole somewhat different from that which has just been noticed, and turn much on the difficulty of distinction between cases of mentally defective children, properly so called, and of children whose subsequent history practically shows them to belong to the class which the terms of the Act would certainly exclude. Now in a very large proportion of the cases of children coming under question, ample and ready evidence is available touching their history from birth upwards, both as to their conduct and grade of intelligence, as indicating, together with the actual examination of the expert, such a degree of permanent mental defect as makes it unsafe to leave them without proper care and control, and thus renders them certifiable under the Act, either as "feeble-minded" or as "moral imbeciles." But in many cases, suspected or roughly classed as subjects of mental deficiency, there is doubtless a considerable difficulty in rightly placing them; and this difficulty necessitates not only careful and repeated observation, but also a thorough testing, by properly chosen educational experiments, of whatever faculties they may possess. The more experienced the observer, the sooner may be detected the difference between the congenital defective and the child who is sufficiently teachable. There is a further question of considerable, but, in this special context, of somewhat subordinate importance, *viz.*, that which concerns the proper grading of feeble-minded children in schools adapted for such instruction as they can receive. Into the first of these two questions has been imported to some extent the confusion, already mentioned, of the terms "mind" and "intelligence," "mental" and "intellectual"; and there has been a great tendency to forget that in children, as well as in adults, the inference of their being the subjects of "feeble-mindedness" is, and must be, drawn not only from their low powers of learning what they are taught in school, but also from the further positive evidence, gained by observation as they grow up, of their deficiency in that sphere of mental function which is commonly called "moral," and concerns especially the question of fitness to live in society without causing harm to themselves or others. Of course,

even in young children there are cases where great incapacity to learn, *i.e.*, to understand or to retain what they are taught, is quite enough by itself to settle the question of their "mental defect" without waiting for the more overt acts, or omissions to act, that may, later, afford prominent evidence of mental defect, not only in these cases, but also in many others where the defect of intelligence alone is not sufficiently apparent to allow the correct diagnosis to be made. The practical difference between the intellectually feeble and the "moral imbecile" has been known for long. Moral imbeciles were quite properly introduced into the new Act as a group by themselves on account of their importance as a practically recognised class ; but they would certainly have been far better and more logically placed as a sub-group of the "feeble-minded." Prof. Pearson condemns, as we have seen, the application of the term "mental defective" to the subjects of the Mental Deficiency Act generally, on the strength of his own use of the term "mental" as exclusive of all the faculties of the mind except that of the intellect, and appears not to have detected the presence of the "moral imbecile" in the Act under the guise of "mental" deficiency. He therefore proposes "Social Inefficiency" as a term in substitution for "Mental Deficiency," and apparently considers this proposal as important. But such a mere change of terminology is neither useful nor, indeed, practicable ; nor does it add to the means we have for distinguishing the persons who should be cared for or segregated under the Act ; and although Prof. Pearson seems to look for the invention of some definite method of "standardising judgments" on grades of "Social Inefficiency," he gives no indication at all for devising any such scheme. The truth is that all those who are conversant with the subjects with which the Act deals are well aware that there is no standard, no hard and fast line that can be laid down for fixing the qualifications for the legal control of "mental defectives" any more than in the case of other mentally disordered persons. The due diagnosis between the feeble-minded and the normal-minded with a view to certification is only to be made after a careful study of each case. No definite method of standardisation is to be expected. In saying this I fully recognise the difficulty which must often exist in differentiating between such young children as appear only at first sight, or for some time longer,

to be mentally defective within the meaning of the Act, and such as prove to be really thus defective. For very often there is no concomitant bodily defect or physical sign to assist the diagnostician even after very careful search, and sometimes there is a very doubtful previous history. Observation and experimental attempts carried out by careful teachers will go far towards elucidating the question of the likelihood of any improvement. In no case of any difficulty should an attempt be made to decide the question of certification in a child without observation prolonged over a considerable period.

It was remarked in one of the papers read before the Annual Conference, in 1915, of the National Association for Promoting the Welfare of the Feeble-minded, that a school doctor is expected to determine at a single interview whether a child he has never seen before is mentally defective, or is simply "backward" (*i.e.*, as I suppose, suffering from effects of neglect, ill-health, etc.). The writer correctly insisted that many mistakes would thus be made by reliance on any standard tests for intelligence. But we may surely trust that this procedure by single interview is neither enjoined by authority on any medical observer whatever tests he may use, nor allowed, if its employment be known, to be repeated.

Concerning the general question of the use of standard tests for grading *intelligence* in children, I can express only my opinion, based on what I have heard or read, that there is good evidence to show that the use of such tests as those known under the name of "Binet-Simon," or others of like nature, may be of value in practice by affording a ready means for the preliminary grading of children in classes ; for recording cases with a view to making a report, or to their transference from one school to another ; or for serving as a help to observers towards recalling the results of the successive interviews found necessary in arriving at a decision. Although I have no personal experience of this method of grading intelligence either in children or adults, I have learned enough, especially from papers read at the above-named Conference, at which I had the honour to preside, to recommend to those who are interested in this matter a study of the report of the Conference ; and also to infer that, short of being regarded as providing any royal road to diagnosis or certification under the Act, or to

giving evidence in a law court, these tests, cautiously employed, may prove to be of practical use in some directions.

To sum up on the general question of testing a person's mental capacity in order to determine whether he is or is not "feeble-minded" within the meaning of the Act, I would repeat that no mere sitting examinations can be expected to suffice. The Act describes feeble-minded persons as those in whom there exists from birth or from an early age mental defectiveness not amounting to imbecility, yet so pronounced that they require care, supervision, and control for their own protection or for the protection of others, or, in the case of children, that they, by reason of such defectiveness, appear to be permanently incapable of receiving proper benefit from the instruction in ordinary schools. The only way to determine whether the examinee can do a thing is to observe whether in fact he does it. The description points to defect in the way he manages his life in all its circumstances and aspects, and this cannot be investigated by any verbal examination. It can be tested only by observing him in the circumstances of his life, and determining how he behaves in regard to them ; how he deals with them, and how far he succeeds or fails. In other words, the test is conduct.

IV. At the risk of some repetition, I desire to lay further emphasis on the important conception of disorder of conduct as the essential factor in the diagnosis of all kinds of what is called mental defect. This concerns not only the matter already passed in review, but also that which will follow in treating of mental defect in relation to crime and responsibility. Many years before I had much practical conversance with the subject of mental disorder I became convinced that Mercier's now well-known teaching on this question was not only plainly true, but also immeasurably useful in attaining to clear notions of what insanity consists in, and of the right way to recognise and describe it in individual cases ; and the strength of my conviction of its importance has grown with increasing experience. I had long been accustomed to hear that insanity could not be defined, and at the same time to find, in books on the subject, numerous and usually discordant accounts of it purporting to be definitions ; but Mercier's definition seemed to supply all that was wanted by intelligent students as an introduction to a subject that previously appeared to many almost as hard of approach as an uncharted land. It is now, I think,

widely accepted that disorder of mind does exist outside insanity ; that insanity cannot be defined as disorder of mind ; and that the disorders of mind which take part in insanity are inferred or discovered by observation of disorders of conduct, without which the diagnosis of insanity cannot be made. Not only skilled specialists, but also all medical men, as well as the laymen who often form provisional judgments on a person's sanity, do virtually draw their inferences and opinions from observations of conduct, not of mind ; not from what is thought or felt, but from what is said or done. These inferences, which may, of course, lead to still further inferences regarding the cerebral and other bodily states that accompany or underlie or more or less proximately cause the mental disorder, are based primarily on the observation of defects and aberrations of conduct, or, in other words, of a person's action or inaction in relation to circumstances. It would seem, indeed, that the very formulation of this doctrine is its sufficient proof. Yet it appears, not alone from a passage in the preface to the last edition of Dr. Mercier's *Text-book of Insanity and other Mental Diseases*, but also from other indications, that the explicit acceptance of this doctrine may not have made much progress during the many years that have elapsed since its promulgation ; and that, therefore, many persons may be acting upon it, as M. Jourdain spoke prose, without knowing it, or even when actually denying it, and thus hiding the truth in their hearts while the words of their lips are far from it. I certainly cannot corroborate the allegation of this doctrine's slow progress from my own observations, which seem rather to indicate a fairly general recognition of the truth and utility of Dr. Mercier's teaching ; but, on the other hand, I am not in a position to challenge it. Should it be true, I can but say, *mirror magis*. That very condition of the lunacy certificate which demands the statement of "facts observed" implies the fundamental truth of this doctrine. We cannot observe the contents of another man's mind or the function of those parts of his brain which we surely conceive to be affected. Nor even even if our knowledge should so far grow as to demonstrate still further links in the chain of causation, such as metabolic changes originating in other internal organs, would disorder of conduct be any the less important as an essential element in any clear concept or practical definition of insanity.

In concluding this section of my notes I would shortly refer to the importance of the conduct test in its special bearing on the question of duly assessing degrees of responsibility in persons charged with committing criminal actions, but apparently not rightly liable to the full penalty for what they have done. Some cases of this kind come, of course, within the category of "mentally defective," and especially "feeble-minded" persons, including the "moral imbeciles." Others would be included in the long-recognised clinical class of "morally insane"—a class which perhaps has been the chief subject of dispute between physicians and jurists on the matter of criminal responsibility. Now, this group of "morally insane," properly regarded though it may be by some jurists, is still not legally placed or duly recognised, and is likely still to cause trouble and confusion unless the well-known conception of criminal responsibility nominally accepted in law undergoes material modification. It must be remembered that in cases of each group we are considering there is very often difficulty in proving defect in intellect by ordinary tests, or indeed by any tests apart from considerations of conduct, *i.e.*, of the actions of the persons in question, studied in their relation to all the discoverable circumstances in which the actions were done. The importance of the conduct test is thus seen in connection both with the matter of the diagnosis of non-criminal cases of mental defect where the defect of intellect, though existent, is not readily demonstrable; and with that of deciding the degree of responsibility in a person charged with crime. In Mercier's work on *Criminal Responsibility*, published over ten years ago, some important amendments of the usually accepted legal formula concerning responsibility were suggested, one of which was the addition to the clause concerning "knowledge of the nature and quality of the act," of the significant provision that in order to incur full responsibility a man must not only know, *but also appreciate*, the nature and quality of the act, and also *know and appreciate the circumstances in which the act was done*. This addition, recommended by the joint committee appointed to report on the matter, was adopted, as is well known to the readers of this Journal, at the General Meeting of the British Medical Association last year; and will, it may be hoped, secure as wide an acceptance in legal quarters as has been accorded for so many years to the unamended

doctrine which was an indirect issue of the Macnaghten case. The only way to discover whether the criminal did know and appreciate the circumstances is to study his action in those circumstances, *i.e.*, in other words, his conduct. It seems, therefore, that full consideration of the acts done, and all the circumstances in which they were done, will often be of great assistance in cases of special difficulty, and will enable medical witnesses to show that, although the accused *knew*, in a limited sense of the word, that the act he did was wrong, he did not appreciate all the circumstances and consequences of his act, and thus misconceived and under-estimated its wrongness; in short, did not know how wrong it was. There are, of course, many cases which, in spite of the too rigid conception of criminal responsibility that has hitherto prevailed, are now often dealt with by greatly modified sentences. Offenders of this kind, though they may not be classed as strictly insane, should be subjected to other and more appropriate treatment than ordinary imprisonment. A case which is illustrative of these remarks has very recently been under my observation, and I hope to be in a position to refer to it in some further notes on "Mental Defect and Crime," which, by the courtesy of the Editors, may appear in a subsequent number of this Journal.

(¹) It may be noted here that Dr. J. S. Bolton in his recent book on *The Brain in Health and Disease* represents the new Act as using the term "mentally defective" instead of "feeble-minded" to denote the highest of the three specified grades of defect. A reference to the Act would have shown that the contrary to this statement is true.—(²) See *Brain*, Part cxxiv (1910). *Journal of Mental Science*, 1905-1908, and Dr. Bolton's book already referred to.

Cases of High Grade Mental Deficiency.(¹) By JANE I. ROBERTSON, M.B., Beit Memorial Fellow, Eastern District Hospital, Glasgow.

THERE is a class of individual loose upon society whose presence and significance in our midst seems, as yet, insufficiently and improperly appreciated. These people are usually of pleasant address, with all the outward show of civil social observance; they are fluent of speech, readily adaptable to circumstances, superficially in every way most plausible. How does it come, then, that on closer acquaintance they prove to be the scourge of their relations and friends; that many of

them have a prisoner's acquaintance with the police courts ; that they are frequently embezzlers of money ; are guilty of theft, drunkenness, and immorality of every kind ; that slander, with all its miserable train of disintegrating influences, emanates from them as a miasma ? Punishment is no deterrent to their anti-social activities ; they are supremely unaffected either by the teachings of past experience or the forewarnings of future suffering.

What are these people, then, and how should they be regarded ? Briefly, they are cases of high grade⁽²⁾ mental deficiency that, for their own protection and that of society, should be diagnosed and segregated as such. One case studied in detail will provide a sufficient basis for further discussion.

G. N—.⁽³⁾ G—, æt. 25 ; the eldest of a family of six ; from birth till she left school at 14 in the sixth standard her health and conduct were apparently normal ; at school she was intelligent, learnt quickly, and never had trouble in preparing her work ; her games were fairly imaginative ; reading books of travel and adventure was always, and still is, a passion with G— ; needlework and housework have always been irksome, but are done skilfully enough under pressure ; G— has always been of an irritable temper, and careless in details of personal niceness.

Family history.—Except for one cousin who committed suicide, no history of nervous or mental disease in other members of the family is obtainable. The mother is a delicate, highly-strung woman ; the father, a master mariner, enjoys good health ; the other children are all small made, more or less delicate individuals ; G— is by far the sturdiest-built of the family.

General physical condition.—G— is short of stature (4 ft. 11 in.), well built, well nourished (8 st. 6 lb.). Her features are rather heavy, but the expression is predominantly intelligent, though frequently sulky and sometimes furtive. Irregular movements of the eyebrows are noticeable, and sometimes biting of the lower lip. The patient's bodily movements are alert, easy, and well co-ordinated.

There are no abnormalities of the circulatory, digestive, respiratory, or nervous systems, and no outward physical signs of degeneration.

Patient's career.—After leaving school G— remained at home

for about two years, helping somewhat unwillingly in the house, and attending night school to learn shorthand, book-keeping, and English. At this time her family learnt that she had been telling untruths about her bad health, and the unkind treatment she received at home. Shortly after she was 16 G— obtained a post as clerk, and her people discovered that for the six months preceding this she had not attended night school, though she had obtained money for fees, books, etc., and had left the house of an evening ostensibly to attend the classes. Six months later the family moved to another house, and G— went as clerk to another firm, where she remained for two years. During these two and a half years G— gave her mother her entire salary at regular intervals.

In the autumn of 1910 G— left her situation for no definite reason and declared she had another, but after this only odd sums of money were handed to her mother with prevaricating statements. G— was not at work at this time at all, and the money she gave her mother was borrowed from girl friends. During this period she left the house in the morning, returned for dinner and went out again, as though at work, but actually spent her time with girl friends and wandering about; she gave tea-parties in other people's houses and drove in taxicabs, etc. In May, 1911, her mother first learnt of her conduct, and remonstrated with her about it. G— promptly ran away next day, and spent the following eight months with friends in Glasgow, completely out of her parents' ken. In December, 1911, she was in the hands of the police for obtaining money under false pretences from her friends, and her parents got into touch with her again. To a lawyer who saw G— in prison she related the following tale, the only commentary on which is that it is entirely imaginary:

"About two years before May, 1911, accused was employed in the office of a Mr. Wilson, and while in his employment became acquainted with Archibald Colquhoun, Grand Hotel. Colquhoun acquired an influence over her, and told her that he had compromising letters written by her mother to a gentleman in Cardiff, and had induced accused to leave her home. Colquhoun instigated the offences under continuous threats of disgracing accused's mother. Accused was shown the letters but was not allowed to read them, and the vile insinuations of the man Colquhoun so worked upon the girl that she came

completely under his influence. Colquhoun showed her certain documents which bred the suspicion that accused was not her father's daughter."

The charges in the indictment against G— may be summarised thus: "On various occasions you did pretend to A. M— that you were a Doctor of Science, and had been elected a Professor, and carried on business as Dr. Garey; that you had been left £600 by a friend and £6,000 by your grandmother; that your medical adviser was Prof. McCormick of St. Andrews and Edinburgh; that your lawyer was laid up with fever in the house of Prof. McCormick at St. Andrews, and was thus unable to send you money, and that you would repay to the said A. M— any sums he advanced to you as soon as your lawyer was able to attend to business, and you did thus induce the said A. M— to deliver to you at various times and places sums amounting in all to £74 5s., which you appropriated to your own use," etc. It is difficult to know which to admire more, G—'s fertility of invention or her friend's easy credulity.

In January, 1912, after completing a sentence of thirty days' imprisonment, G— returned home; here she remained, restless, irritable, and unoccupied, till May, 1914. During this period she became acquainted with a Mrs. R—, wife of a seafaring man; in the husband's absence at sea G— would often spend the night with Mrs. R—, a gentle, affectionate, simple woman, from whom and from whose father-in-law she wheedled sums of money amounting to some £60. G— was to receive a large legacy; she was a doctor and had a post at the Royal Infirmary; she was setting up in practice at a very good address in Glasgow, and had a motor and chauffeur and a staff of servants; a book of housekeeping accounts, and of large sums spent on house-furnishings, was left lying about for the admiration of her friends. While intimate with Mrs. R—, G— had "fits" that always came on when she was safely in her friend's house; they were characterised by sighing moaning respirations, aimless movements of the arms, rolling of the head and eyes, while the latter had an unseeing stare, movements of the tongue, and signs of much physical exhaustion. These "fits" might be prolonged, and alarmed Mrs. R— very much, who treated them with petting and the application of hot cloths; apparently the climax usually consisted of a cup of tea and toast, and not infrequently a poached egg, which the nurse, not the patient,

was too worn out to enjoy. G— at this time purchased and read medical books, and probably the “fit” had been read up. When annoyed, G— would threaten to take her life, usually by jumping from the fourth floor window, but no one, not even Mrs. R—, ever took her seriously ; it was her method of getting Mrs. R— to promise not to tell her parents about her, and Mrs. R— kept faith with the girl, believing she had an unhappy home.

In May, 1914, Mrs. R—’s father-in-law began to make inquiries about G—, and when the girl was told she evinced much alarm and fear, but no sort of contrition, and decamped next morning to London, taking, without permission asked or granted, 30s. from her hostess. G— remained in London, living partly on money her mother sent, and partly on the charity of a lady on whom she imposed for a short time, and then about the middle of July she sent her mother her London address, and the latter went and fetched her home to Glasgow at the end of the month.

G— remained at home only a week ; owing to the outbreak of war, St. Pancras Parish Hospital, London, was short of nurses and advertised in Glasgow for probationers, and her mother, thinking it would satisfy the girl’s craving for change, sent her back to London as a probationer nurse. Naturally no word of her previous career leaked out. For a time things seemed to go well, once G— had recovered from the shock to her self-conceit when she discovered she was in a Poor Law establishment. In May, 1915, however, her mother was summoned to London. It seemed that G— had borrowed money amounting to £11 from her fellow nurses, that she had run away on May 22nd, leaving a note threatening suicide, and giving her address till that evening, that she had promptly been captured and brought back to hospital, and was being cared for as a suicidal patient and under constant observation. G— seems to have been much surprised and annoyed at being taken so literally, but on May 28th she was certified, and admitted to an asylum as a suicidal case. The hospital nursing staff spoke nicely of G—, whom they seem to have liked, and whose tales as a sea-captain’s daughter of many voyages they had admired and believed ; her experiences in an American leper colony had been particularly interesting. Here, as in Glasgow, interesting letters, to and from utterly imaginary people, had been left

lying about where her fellow nurses would be likely to see and read them.

In the asylum G— was considered as an "exhaustion psychosis," and was discharged "recovered" on June 15th, and, after some confused arrangements, allowed to travel alone to Glasgow, under care of the guard, with a shilling or two in her pocket. G— left the train in the suburbs of Glasgow, instead of proceeding to the terminus, where her parents awaited her, and spent the night in a hotel. Next day, however, she met her parents accidentally in the street and went home with them, to be sent on the following day to the Eastern District Hospital Observation Wards, as her parents considered her utterly beyond their control.

Under observation G— has been found to be of an irritable temper, requiring discreet control ; on the whole, however, she is a very active, not unkindly girl, pleasant with the children and old patients ; the restless, changing activity of ward life suits her fairly well, until the confinement irks her. In November, 1915, she seized a favourable opportunity and ran away to a relation in a neighbouring town, but was persuaded to return next day. Residence in the Infirmary has not dulled G—'s gift of vivid narrative. A number of the nursing staff, seniors at that, have been much interested in her accounts of pre-war visits to the Belgian towns, since destroyed by the Germans ; others were entertained with accounts of her wedding trip to various Italian ports in her father's ship, etc.

This account, much condensed, and with many quaint touches necessarily omitted, brings G—'s history up to date, and some of the more significant features of her case may now be briefly indicated.

Summary.

(1) The time of onset of the romancing habit. With G— it was *first noticed* by her sister about the age of sixteen, but probably it had been in progress for a year or two before this.

(2) The mental alertness in childhood ; the easily prepared lessons ; the voracious reading of tales of adventure and travel.

(3) The absence of any capability for concentrated sustained mental effort which became apparent after G— left school about the age of fourteen, and which, if anything, has become more marked with increasing age.

(4) The irritability of temper which leads to outbursts when G— strikes. The greater frequency of these states of irritability of late years. The marked physical restlessness. Mrs. R— said that G—'s constant coming and going in the house, and inability to settle to any occupation, were wearying in the extreme to the onlooker. The idleness, combined with considerable manual dexterity when the particular occupation, for any reason, proved entertaining.

(5) The need of attracting attention and admiration, which, while it led to the purchasing at times of extravagant articles of dress, etc., never in G—'s case overruled her habits of personal carelessness, and even uncleanness; she still needs supervision in order that she may conform to the ward sister's standards in these matters. It was a source of grief to the girl's mother when she was called to London to find that G— had failed to procure the artificial denture for which she had been sent money, and that her hair was verminous.

(6) The absence of any warm affections; for instance, her cruel tales about her people; the lack of real emotion at the pain and trouble she has cost her family; her unabashed attempts at resumption of intimacy with her victim, Mrs. R—; this lack of affection is a point on which her relations, friends, lawyer, and her nurses are all singularly at one.

(7) The absence of any real consciousness of guilt or shame. There is annoyance and irritation, and even fear, displayed when the situations in which G— always finally lands herself become impossible, but neither in her letters nor in her conversation, when actually charged with her fabrications, is there any genuine contrition or shame. There is no intellectual appreciation of the significance of her conduct. Charged in round terms with lying, G— either lapses into sullen silence after doggedly asserting the truth of her fictions, or she prevaricates with disarming skill and invention round the charge, weakening its significance in every possible way, or else she sometimes ends the matter with a half-helpless grin, and the remark that she did not think that the first lie in any one particular chain of fabrications would be believed, and then, as she herself says in one of her letters, "one lie means thousands before you finish." G— might thus be considered either as an unscrupulous cynic deliberately playing with the gullible fools who seem so numerous along her path, or as an

impish child, whose naughty *ballon d'essai* having met with incredible and unexpected success, is passively impelled deeper and deeper into a sea of deceit by the culpable stupidity of incompetent adults. Unfortunately, the problem is not so simple as this, though there is an element of truth in the latter view.

Though incapable of adhering to the truth herself, G— is quite aware of the difference between truth and untruth, and is quick to resent any report concerning herself of which she is made aware, and which she says is “untrue.” In a letter she writes, “I have always been off the straight.” G— knows it is wrong to tell untruths, to take money under false pretences, to tell unkind lies about her mother, etc., but all in an impersonal, detached, external fashion; the wrongness of it has no vital importance for her mentality, and therefore cannot act as a deterrent when by telling untruths some immediate gratification can be obtained.

(8) The curious lack of real cunning, as shown by the absence of adequate precautions to prevent the lies being detected; they are told as freely and unguardedly to acquaintances of the family or to officials of the hospital where G— is under observation, as they are to strangers whom they might be expected to deceive. Again, the same individuals will be lied to repeatedly after exposure. As her lawyer exclaimed in exasperation when trying to analyse this aspect of her conduct, “as a criminal she is contemptible.” Mrs. R— put it that G— never heeded where her tales led, but always trusted to “something turning up” opportunely to save her from their inevitable consequences. There has been superabundance of lying, of inspired and plausible mendacity, but no sign of really intelligent criminal subtlety. G—’s offences are of the self-limiting type of crime from sheer lack of wisdom, and inevitably lead to the police court.

(9) The vices in which G— has not indulged. Theft does not seem to have been committed in the ordinary vulgar acceptance of the word, except perhaps twice, and that fairly recently in her career. Deliberate theft is, however, one of the declensions that G—’s morality, already not too high, will probably undergo unless artificially prevented. Sexual immorality does not seem to have been indulged in; nor is there any evidence of any alcoholic habits.

(10) The complete remembrance of the lies told and the things done, of the money borrowed and spent, of the flights in all their details, coupled with the inhibitory control, probably very far from complete, of the lying habit when in contact with her home circle. That is, the complete continuity in consciousness of the lies.

(11) The irregularly occurring flights that seem in each instance to have been determined not by any real anguish of mind, agony of regret, or paroxysm of shame, or any ascertainable fits, but simply by annoyance, or fear, at a situation that has reached an *impasse*.

(12) The absence of any anæsthetic skin areas, or of any definite fits or emotional crises beyond what have already been noted.

(13) The pleasant, intelligent, rather engaging air and manner of the patient in her more even moods. When G— feels important she fairly irradiates happiness, and manifests a rather striking physical alertness and poise. G— seems to be attractive to the people with whom she comes in contact, and is well liked in hospital. Nevertheless, there is at times something vaguely repellent about her that makes the accounts of her irritable temper easily credible.

(14) G— has no delusions and no hallucinations that have been discoverable during 7–8 months' observation; neither has she manifested any real depression or exaltation.

Discussion.

G— may be considered as very fairly typical of all such cases. The age at which the condition becomes apparent may be even earlier, one case that has been reported lately in the newspapers concerns a boy æt. 11. The precocity and the voracious reading are typical, so are the lack of concentration and persistent effort of any kind, and the curious busy idleness. The irritability may or may not be excessive or defective. Emotional and moral indifference, and an unjustifiable self-conceit, are constant characteristics; as is the plausible yet essentially stupid lying. The vicious habits indulged in vary, of course, in number and degree. A pleasant, rather taking air, combined oddly enough with something repellent, is also typical, and is remarked on by numerous observers. The picture as a

whole is always amazingly the same, but the colour gradations vary within wide limits.

These cases are baffling, really more by reason of their high degree of mental attainment than by their deficiency. Figuratively, the vulnerable heel of Achilles is in his head and so well concealed that the essential weakness due to its presence there is just at first not easily appreciable. Minds such as these are working at lower, more automatic level than the average, and they are endowed with everything except the power of earning by concentrated effort and industry the right to the higher grade gratifications of civilised life. This more automatic or reflex character is indicated in two ways; first, by the typical physical restlessness, frequently exhibited as spasmodic muscular movements, which in some cases may develop into definite attacks of chorea; second, by the need for an immediate and indiscriminate satisfaction of any given desire. Patients of this type are flotsam, at the mercy of impulse and desire, over which they are unable to exercise any selective control. They are incapable of not responding to the stimulus of any passing whim, and they become guilty of technically immoral actions, owing to their being non-normal, irresponsible creatures in a moral society of responsible individuals. What these people cannot earn, however, they covet, and if they cannot earn the just rewards of effort, such as wealth, respect, admiration, fame, or glory, etc., they nevertheless can and do assume them. In these matters they even improve upon the cynicism of Hamlet's advice to assume a virtue though one have it not. The amazing thing, however, that is almost as interesting sociologically and pathologically as the patient, is the number of supposedly competent people who accept unquestioningly, nay, with admiration, the claims he puts forth. No normal individual, of course, could support life without the enjoyment, in some degree, of the higher grade gratifications, sanctioned at least by his own, and preferably supported by other people's judgment. Thus there may be in this, so to speak, insane theft of unearned gratification, an element of a sense of deficiency on the part of these patients; a concealment from others, and perhaps ultimately from themselves, of an organic "fault" which causes an unpleasant sense of personal inferiority. This view recalls at once Janet's (1) definition of the "starting point of hysteria,"

that it is "*a depression, an exhaustion of the higher functions of the encephalon.*" In the writer's opinion, however, the cases under discussion are suffering from a developmental absence of the highest cerebral levels, and this brings them at once within comparable distance of some of the manifestations of hysteria, though it does not in any way identify the two conditions. The relations between hysteria, epilepsy, and insanity are not yet understood, nor are the confines of their territories settled. In this connection it is worth noting that of seven cases of which I have been able to obtain accounts, one has a family history of insanity and epilepsy, one of insanity and "nerves," one has already been the victim of an attack of acute insanity as distinct from her permanent mental deficiency, and two at least present to the trained eye the epileptic facies with its suggestion of impulsiveness. The early manifestation of the condition, however, in cases whose career can be completely traced, seems to me a strong argument against considering them in the light of hysteria; these patients are suffering, in the writer's opinion, from a deficient development, from a degree of primary amentia, not from a secondary dissociation of a possibly feeble but complete mentality. Further, the permanent and apparently incorrigible nature of the affection also supports this view.

It is probably clear enough that G—, and all her numerous brothers and sisters in affliction, are cases of insanity of arrested development, of feeble-mindedness, or high grade mental deficiency, and, as in all really high grade deficient, the moral manifestations of the condition are the most striking. That is, G— is morally an imbecile, but the moral imbecility is probably due to a mental deficiency, and is only its most striking manifestation. As Maudsley (2) writes of cases of moral alienation: "One cannot truly say, however, that the intellect is quite clear and sound in any of these cases, while in some it is manifestly weak."

Till the age of 12-14, G— was *apparently* normal enough; she had an intelligent, ingenious child's quick superficial apprehension and love of the marvellous; a child's lack of wisdom and of appreciation of the relations of means to ends; the vague, arbitrary, externally imposed conceptions of right, which have at first no emphatic internal sanction in a child's mind; a child's simple, rather unintelligent emotionalism, frank

selfishness and self-importance, lack of control, lack of concentration, love of display and need of immediate gratification ; a child's uncertainty and indifference as to where falsehood and truth begin or end ; the low standard of personal cleanliness that many children have ; a child's utter lack of insight into its own mentality. In spite of this, however, G— was probably never normal, though her essential abnormality did not become apparent till circumstances gave it scope for development.

Any child æt. 12-14 will present any of the above qualities more or less clearly marked according to the varying rates of individual development, etc., but no normal child presents at any one time quite so unpleasant and incongruous a mental whole as do G— and her like. This is because the more primitive phases of mental development in normal children are only appreciated as dissolving views progressing steadily to adjustments more developed, co-ordinated, and harmonious. A deficiency or redundancy barely becomes irksome to the observer before it is found to have been more or less rectified ; its place, it is true, may be taken by another as glaring, but it too in turn becomes appropriately co-ordinated, and, with a sigh of relief, the parent realises that the child is no longer the "young savage" of earlier stages. In G—'s case, however, there has been no gathering up of the reins of cerebral government by the highest intellectual levels, owing to the developmental deficiency of those levels, and there results the grown-up abnormal child with its insubordinate mental acquirements stereotyped and emphasised in all their unharmonised crudities. It must be remembered that these cases are not only suffering from the negative effects of a deficiency of the highest grade mental levels, but also from the positive effects of an abnormally uninhibited action of the lower grade levels. The child that never grows up must keep eternal normal childishness of body as well as of mind not to be an ineffably tragic figure in a grown-up world.

Dr. Mercier (3) puts it thus in discussing these cases. "If we pass in review the qualities that have been described as characteristic of the persons in question, we cannot help being struck by their similarity to the qualities of uncivilised man. The fundamental defect in their nature, the incapacity for steady, continuous, persistent industry, is eminently and emphatically the defect in which the savage is most conspicuously inferior

to the civilised man. The other qualities which are defective in them are defective in the savage ; those which they possess, they possess in common with him. In their shallow cleverness ; in their manual dexterity ; in their addiction to crude artistic performances ; in their fondness for sport ; in their sedulous care of their personal appearance ; in that colossal mendacity which indicates, not so much a disregard for truth as a want of perception of it ; in their personal conceit and vanity they proclaim aloud their kinship to the savage. Two other qualities only are needed to complete the parallel ; and neither is wanting. The lack of intelligent foresight, which renders the life of the savage an alternation of orgies of gluttony with intervals of starvation, is paralleled by the equal lack of the same quality which his modern representative exhibits when he squanders upon luxuries in a fortnight the means which, if properly husbanded, would have kept him from penury during the remainder of the half-year. And the complement and obverse of this lack of foresight, that forgetfulness of past distress which deprives the savage of his incentive to provide for the future, not only performs the same office for the class of men here dealt with, but prevents them from experiencing that normal and proper depression and loss of self-esteem which these repeated failures ought to produce. Even the impulsive ferocity of the one is represented by the short-lived outbreaks of anger in the other. In all essential respects the person whose character has been sketched is a reproduction, at a later date, of the qualities of his remote ancestors. He 'throws back' to his forefathers. He is an example of atavism, of reversion. As a civilised man he is a failure, but he is a very fair savage.

". . . . This, then, is his position : he is out of adjustment to his circumstances ; moreover, there are no circumstances to which, if left to himself, he can adjust himself. The unadjustment is due, not to disorder of the process of adjustment, but to defect of the process. He is as wanting in the ability to conserve his own life by his own efforts as is the imbecile who cannot be taught the difference between a shilling and a farthing. His defect is not of the same nature, it is true ; it is not an inability to perceive the true relations among simple phenomena ; it is an inability to forgo immediate indulgence for the sake of greater future benefit ; and if we regard this

inability as the foundation of morality, he may be classed with scientific precision as a moral imbecile." This extract contains probably both an over- and an under-statement of the problem. The normal savage and the abnormal civilised man are not essentially comparable, the latter does not make "a very fair savage," but the picture drawn of him is so vivid that in general terms it may well be accepted.

These cases then belong to, if they do not form, the class or highest grade mental deficient; they are of quite frequent occurrence and are found in every social class, and in each are accounted, for a time at least, among the clever and gifted. Individual cases vary naturally in the exact degree and manifestation of their mental handicap, but essentially, until the deterioration due to evil habits sets in, they are an intelligent set of people, usually of pleasing address, and, as would be expected, showing few if any of the outward stigmata of degeneration. Ironically enough, these high grade defectives are ultimately much more severely penalised by society than those of a lower grade. It requires little acumen to diagnose the child who steals aimlessly and openly, who wears stolen jewelry in the sight of the owner, who tells unnecessary lies, who is idle, stupid, and uncleanly, and that individual is promptly and properly segregated and placed under due restraint before she has come into serious conflict with society. The intelligent precocious youngster, however, whose plausible fabric of lies is based on a not impossible foundation, whose aberration from the normal is too subtle at first for proper appreciation by the untrained, is rarely diagnosed in time to prevent disaster to his victims, his relations, and himself. It is only after prolonged experience of the insane irresponsibility of these cases that they are sometimes considered in a proper light, and it is fortunate indeed if by that time the patient has not found himself in prison, or suffered social ostracism, acknowledged of no man, and accepted of no institution. He has all the mannerisms of sanity, but none of its principles, and unfortunately his mannerisms are accepted at their face value by most people until betrayed by the lack of principle, *i.e.*, the insanity; and then it is the machinery of punishment, of retribution, not of sympathetic analysis, that is promptly set in motion against him. The average individual eventually sees in G— and her like merely social parasites of the worst

description, battenning on their more naïve neighbours, and does not pause to inquire why they should be parasitic, nor what is the rational treatment that should be meted out to them.

Bandied about finally between legal and medical authorities, these people still remain round pegs in the square holes whether of prison or asylum. The prison authorities regard them as incorrigible and constantly-recurring nuisances, the asylum authorities have little love for them owing to the difficult atmosphere their peculiar mentality at once creates in such specialised surroundings; in both institutions they are sources of constant trouble and expense, and can hardly ever be permanently detained even in the asylum. Yet these patients are not criminally responsible, neither are they sane. A third type of segregation would therefore seem imperative, which, to be of any practical value, however, should come into operation before ever the tedious and expensive medico-legal conflict over the patient arises. It is therefore a matter of real social importance that these highest grade defectives should be recognised early in their career, and suitably cared for. Their whole lives are anti-social, and they have a markedly disintegrating effect whatever their social rank, and it is this that makes them a social menace. At school and college they exercise an evil influence over their companions, an influence that is rarely fully appreciated by parents or guardians. I know personally of one harum-scarum lad who was adjured by his parents to take as his model a flagrant example of this type of defective, so pleasantly had the latter impressed them with his easy manners and accomplishments. Among the better educated classes these cases almost always become involved in dishonest pecuniary transactions of more or less magnitude, money being so essential a factor for the gratifications of modern life. As time goes on, more and more vices are indulged in, and these people "go under" in various ways, are cast off by outraged relatives, dismissed to the colonies, and descend the social scale with much rapidity. The socially inferior cases are less seldom involved in pecuniary transactions, at any rate of any magnitude, but their inveterate mendacity in itself is always a disruptive factor in their lives, and this, and their incapability of sustained effort, sets them drifting from one temporary occupation to another. These are

some of the people who swell the ranks of casual labour of all descriptions; men who drift from one more or less skilled job to another; women in domestic service who pass without a "character" from one situation to another. Wherever these people go, they create ever-widening circles of antisocial influences based on irresponsible lies and actions. Much time and money, often ratepayers' money, is spent on each of them before they pass out of existence, and it is spent in a manner profitless to all concerned. Amazingly few ever seem to reach proper institutional care. Out of 7 cases of which I have been able to obtain accounts, 1 is in an asylum, 1 is under observation, 1 has lately been compelled by his relatives to enter the army, 2 are domestic servants, 1 was in service but has died of cardiac disease, 1 was a partially-trained hospital nurse but is now married.

Treatment of such cases in the sense of aiming at a cure is, on the face of it, impossible. Treatment can only be directed towards protecting these individuals from themselves and from society, and society from them, and this means some kind of suitable restraint. They are, however, an exceedingly difficult people to deal with, and their detention must have a clear legal sanction, as their endless chicanery and unfathomable plausibility render essential an absolute authority for the proper control of their activities. As already suggested, the need for this control is twofold, as there are at least two people concerned in the matter, that is, the patient himself and his victim. It is in no flippant spirit that reference has already been made to the havoc that these high grade mental defectives can make in other people's lives. There is a large proportion of the community that needs active protection from the sinister endowments of these by-products of civilisation. So firmly, *pace* modern cynicism, are the foundations of civilised society based on the convention of mutual trust and good faith, that it is only a fairly small proportion of people who have insight enough to suspect its insane abuse by these cases. The history of every one of these high grade defectives shows that the simple, the gentle, and the stupid, are their victims in purse, reputation, and peace of mind, yet these form a large section of our eminently respectable and industrious, and, therefore, valuable citizens. The less astute members of society have as good a right, and a greater need, to be protected from the

subtle machinations of insanity as they have from the obvious depredations of the ordinary criminal.

The cost of segregating these cases is always a matter for anxious thought, but much has to be carefully considered before the problem is dismissed as insoluble on those grounds. Against the cost of providing suitably for them must be put the profitless expense with which such cases always, sooner or later, burden the State as embezzlers, "in and out" prison cases, temporary asylum inmates, patrons of various anti-social vices, parents of illegitimate children, and last, but by no means least, as instigators of crime and vicious living in others. Also it must be remembered that these individuals under discreet guidance are capable of much-skilled manual, and quite an interesting amount of mental, work, and it should not be impossible to make them defray much of the cost of their own keep. Again, many cases are of comparatively wealthy parentage, and suitable maintenance fees might be charged. The proper control of these high grade defectives would undoubtedly be an economy for everyone concerned.

Environment during childhood does not seem to exercise the slightest influence on these patients; they occur in families of good social position, of good parentage, and in which, under exactly the same circumstances, several other children of varying temperaments grow to happy, normal adult development. The true mental defective, of whatever grade, is born, not made.

Granted, then, that these cases of defective mental development are a social menace, and require restraint of some kind: how, and when, and by whom should we expect them to be recognised?

The mental defect in these cases only becomes apparent during the years of late childhood or early adolescence. It might therefore be considered that the parents would be the surest observers of the condition, but this, except very rarely, is far from being the case. Several things militate against this. Not infrequently the parents are elderly people and the children precocious and active, whose rapidity of development utterly blinds their parents to their later shortcomings; or, as in G—'s case, the parents are more or less shut out from the child's real life, which goes on at its debased level outside their ken. The awakening in either case is a long and difficult process and usually comes too late.

As a matter of practical fact it should be the schoolmaster or mistress, failing really intelligent parents, who should be able to warn the relatives of the developmental anomalies that they are witnessing in the child. This is certainly the case in boarding-schools where the leaving age is 16-18 or more; in board schools the condition may hardly have begun to assert itself before the age for leaving school, *i.e.*, 14. All teachers, of whatever social class, however, should be capable of recognising the various indications of mental deficiency in their pupils occurring at any age. The difference between these high grade defectives and the lower forms is after all only one of degree, but there are one or two points especially suggestive for the early detection of the former, and not usually connected in the lay mind with mental deficiency.

First, and perhaps most important of all, precocity of any kind. Precociousness may be due to one of two causes, and always requires judicious examination and treatment; it may be due to a real and unusual development, or it may be due to an absence of normal inhibitions, in consequence of which there is temporary overaction of certain powers suggesting an apparent precocity. The latter cases always end, as they begin, in mental disability, the former in many instances also, except under very favourable circumstances.

Second, voracious reading. Habits of excessive reading should always be suspect; in itself reading frequently signifies little, occasionally it may indicate a budding literary talent, but, associated with other signs, it sometimes points to an unoccupied indolent mind, of intrinsically poor imaginative power, and a craving for constant external stimulation. The large vocabulary and apparently great imagination of the cases under discussion will usually be found to be merely reproductions from sundry of their literary adventures.

Third, an unusual facility and flow of language, uncorrelated with any attempts at original literary composition save that of letter writing, which may, however, be excursive.

Fourth, a growing discrepancy between a child's intelligent, alert *manner*, and *apparently* quick apprehension, and its power of reproducing good work of its own initiative; it is the discrepancy that is important. Children merely of poor mental initiative are rarely alert in manner, or apparently quick of apprehension, and never clever at mere verbiage. That

is to say, the ordinary child of average but slow mentality, the perhaps "stupid" child, does not present at all the same picture as the high grade mental defective.

Fifth, the permanence of an emotional and moral indifference, not uncommon as a transient phenomenon in children.

Sixth, the permanence and expansion of a habit of ingenious lying; most children are untruthful more or less, but the habit is discarded as a stupidity during normal mental growth; here it is the ingenuity and plausibility of the lies, and the permanence of the habit, that are important.

Seventh, teachers should always consider carefully the child whom, though to all appearances normal, its companions tolerate good-naturedly as "queer," but treat as something other than themselves. The more intelligent school and college companions of most of these cases are usually well aware of their oddity, and this in itself should constitute a matter worthy the careful scrutiny of responsible people.

All educationalists hold that mere instruction does not constitute education; the function of education is, as far as possible, to prepare the individual for "complete living" (4); and observant teachers, with this ideal in view, will find that it is in this respect that they fail utterly with these high-grade defectives. It is possible to convey to them a very considerable amount of instruction, but they cannot be educated. It is impossible to cultivate in these minds a proper apprehension of the connection between actions and results, whence disorder of conduct must be the inevitable outcome. After a given time the proper continuous organisation of acquired knowledge ceases to take place, there is no further real mental assimilation, and no development of discrimination. Later still, of course, no further knowledge at all is acquired. These cases cannot even achieve the educational conventionalism that steers the stupid individual safe through life; they are indeed refractory to education in that they cannot accept it passively, nor benefit by it actively. These children are not in normal reaction to their social and moral surroundings, and it is of this conflict with, and lack of progressive adaptation to, their surroundings that the teacher should be aware whenever it becomes at all serious. After some given point no further development occurs in the individual in his preparation for the duties of life, and it is this cessation of educational development that is the

danger signal, and that, occurring sporadically in one child amongst other children of normal progressive development, should be fairly easily noticeable by the skilled and interested onlooker. The suggestive indications are many, and their occurrence should at least lead to the investigation and discussion of their possible significance in every instance.

Thus the cases that are under discussion fail, owing to their comparatively high grade development, to obtain classification as defectives under the Binet-Simon (5) tests. Healy (6) attributes this largely to the fact that these tests call so much for "language responses," in which he considers this "verbalist type of defective" to be specially gifted, as some defectives are gifted in arithmetic, etc. Some German observers share this point of view, and crystallise their opinion in the irresistible name of *Pseudologia phantastica*. The verbal fluency is undoubtedly one of the signs that tend to conceal from the lay mind any suspicion of the mental deficiency that it cloaks, but it is after all only a facet of that very subtly-cut diamond, the mind of the highest grade defective.

Reported, then, to the senior school authorities, to the parents, and referred to suitable medical observation, it should be possible to ensure the proper recognition of the greater number of these high grade defectives, hitherto so largely overlooked and misunderstood, and to ensure their proper care, to the mutual advantage of themselves and of the community. The urgency lies in the *early* recognition of these cases before they have come into any serious conflict with society. Cases that escape the observation of the educational authorities should be capable of being detected early in their career through the agency of properly administered juvenile offenders' courts. A small number of such individuals will always, probably for a time at least, slip through the meshes of both these sieves; ultimately, however, even these will be convicted, so to speak, out of their own mouths, and suitably and safely provided for.

The crux, perhaps, of the whole question lies in the proper education of school teachers, of all classes, in the elements of normal mental development, and in some of the manifestations of the more frequent and simple aberrations; seconded by the frank recognition on the part of the medical and legal professions of the mental deficiency of such high grade cases, of the utterly incurable, uncontrollable nature of the affliction,

and of the only possible solution of the difficulty by proper institutional or other restraint.

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(1) Read at the Glasgow meeting of the Medico-Psychological Association, March, 1916.—(2) The words “high grade” as applied to mental deficiency are used in this paper in the same sense as they are used when applied to “high” or “low grade” imbeciles, *i.e.*, “high grade” signifies a comparatively slight degree of deficiency.—(3) I have to thank Dr. Ivy M'Kenzie for affording me every facility to study this case in detail in his observation mental wards at the Eastern District Hospital.

Diet as a Factor in the Causation of Mental Disease.

By CHAS. MERCIER, M.D.Lond., F.R.C.P.Lond., late
Physician for Mental Diseases to the Charing Cross
Hospital.

“Forty years long was I grieved with this generation and said: it is a people that do err in their hearts, for they have not known my ways.”

IT is just forty years since I first ventured to call in question the accepted doctrines of the causation of nervous diseases. In an article in the *British and Foreign Medical and Chirurgical Review*, an excellent quarterly now long defunct, I likened the imagination of physicians in this respect to the imagination of that fortunate sailor to whom was granted (nowadays we should say who was given) the fairy privilege of having three wishes fulfilled. After he had secured all the rum in the world and all the tobacco in the world by his first two wishes, he could think of nothing further to desire than “a little more rum.” So physicians, after they had attributed every known nervous disease to sexual excess and syphilis, had no explanation of a

new disease to offer beyond a little more sexual excess. The only nervous diseases that were not then attributed partly or wholly to syphilis were tabes and general paralysis. Some five-and-twenty years ago, when an eminent physician was about to lecture upon the causes of insanity, I hazarded the conjecture that we should hear a good deal about masturbation, and I had no reason to repent of my prophecy. We may be pardoned a little natural exultation when we contrast the present state of ætiological doctrine with that which prevailed in those dark ages. We had then no more reason for our belief than Aristotle had for the belief that all heavy bodies tend to the centre of the universe, but now we know that the mental diseases that we used fondly to ascribe to sexual excess and syphilis are, in fact, due to repressed complexes and infantile incestuous longings. How foolish were our predecessors ! How enlightened are we !

Without impugning in the least the startling discoveries that we owe to the cleanly imagination of Freud, I think it possible that they may be supplemented by researches less recondite. When I study his efforts to discover the causes of mental disease, I am irresistibly reminded of the story of the Purloined Letter. The detectives knew that it must be in the room, so they groped up the chimney, pulled up the floor, sounded the walls, probed the furniture, and ripped up the cushions, without finding the letter, which was lying displayed prominently under their noses all the time. It has occurred to me that our difficulty in discovering the causes of mental disease may possibly be of the same kind. We may perhaps be looking in the wrong places, and instead of searching for them in the privy and groping in the night-stool, on the system of Freud, we may possibly find them on the dinner-table, and in the sugar-basin and the butter-dish. At any rate, we can pursue this method of investigation without filing our minds ; and even if we are unsuccessful, we can leave off with clean hands.

To this line of investigation I was directed by several considerations. First, it is beyond question that certain things, when taken into the stomach, are capable of producing mental disease. Alcohol is an example. Second, the defect of certain constituents of the blood does produce mental disease. Cretinism and myxœdema are examples. Third, whatever the immediate source of these constituents, their ultimate source is

in the food. If the ingredients of the products of the ductless glands are not in the blood, those products will not be produced; and if the ingredients are not in the food, they must be absent from the blood also. Moreover, fourth, it may be that there are certain ingredients in the blood, and therefore in the food, that are necessary to mental health, even without elaboration and transformation in the ductless glands; for investigation has now discovered the existence and the astonishing properties of vitamins. Whatever the nature and whatever the mode of action of these puzzling substances, it is beyond question that their absence from the food does profoundly affect not only the physical health, but the mental health also. Hence I conjectured that it was possible investigation might discover, in the antecedents of some cases of mental disease, some error in diet that might have a causal connection with the disease.

At this point a great difficulty presented itself. Granted that one or more errors or peculiarities in diet were found among the antecedents of mental disease, how would it be possible to assure oneself that such errors or peculiarities were actual causes, and not mere casual associates or antecedents of the disease? To ascertain this I naturally turned to the writings of logicians, all of whom, and they are many, discuss this matter in their chapters on Induction; but alas! I found that upon this topic the logicians are as inept and as manifestly erroneous as they are on every other topic that they discuss. Not one of them affords any trustworthy criterion or test by which a cause may be distinguished from a mere antecedent or associate, and on this matter their writings are as confused and self-contradictory as they are on every other. It became necessary, therefore, to examine afresh the whole subject, not only of the nature of causation, but also of the methods by which causation can be ascertained; and the results of this examination are embodied in the articles which have already been published in the *Journal of Mental Science*. From this I may extract for the present purpose the following principles, which are all that have a direct bearing on the subject now under discussion:

First, that a cause is, strictly speaking, an action, more loosely speaking, an agent exerting an action, on the thing in which the change that we call the effect is produced. That thing in the present case is the patient.

Second, that before we can call an action upon a thing the cause of any subsequent change in that thing, we must prove a connection between the action and the change.

Third, that this connection may be proved in at least a dozen different ways, the only ways applicable to the case under consideration being those included in the Method of Association. When an action upon a thing is associated with a subsequent change in that thing we must not infer that the action is the cause of the change unless—

(a) We can isolate the action—that is to say, unless we can be sure that it is the only action upon the thing at the time that could have produced the change ; or

(b) The association is constant—that is to say, the effect always follows the action, and is never present unless the action has taken place ; or

(c) Though neither isolable nor constant, the action is associated with the effect more often than casual concurrence will account for ; or

(d) Though the association is neither isolable nor constant, yet when the effect is associated with the action, there is a constant peculiarity in the effect.

By applying these principles we can ascertain whether a disease that is associated with what we may conjecture to be a cause, is or is not due to that cause. Such testing of conjectural causes has never yet been performed, except in the case of infectious diseases. With the discovery of parasitic micro-organisms the causes of a large class of diseases have been ascertained, but our speculations as to the causes of non-microbic diseases are much the same as they were forty years ago. With respect to these diseases the custom is to hazard a conjecture, and to speak of the conjectural cause as if it were an ascertained cause ; and with respect to mental disease our attribution of cause is chiefly determined by fashion. At one time, as I have said, the only causes attributed were sexual excess and syphilis. These were followed by heredity ; heredity was followed by toxins ; toxins were followed by repressed complexes. In vain have I called on their supporters for evidence of the truth of these doctrines. Truth, as Dr. Johnson said, is a cow that will yield them no milk, so they are gone to milk the bull. The utmost and the only result of my endeavours has been that the Medico-Psychological Associa-

tion has altered the title of its Table of Causes, and now calls it a Table of *Ætiological Factors*. I do not think the change was made merely for the sake of euphony. It was made, I believe, with the intention of eluding my criticisms. Alienists have the most profound and complete conviction that they can alter the nature of things by altering their names, and that when a new name is given to a thing a new thing has been discovered. Thus, when that which has been known for many years as primary dementia is called dementia *præcox*, they are lost in admiration at the brilliancy of the new discovery, and can scarcely find terms strong enough to express their admiration of the discoverer. They seek to abolish the terrors of madness by calling it lunacy; they seek to abolish the terrors of lunacy by calling it insanity; they seek to abolish the terrors of insanity by calling it unsoundness of mind, which it isn't, or mental breakdown, or neurasthenia. I look forward hopefully to the time when they will call it Mesopotamia. They seek to abolish the terrors of mad-houses by calling them asylums; they seek to abolish the terrors of asylums by calling them retreats; they seek to abolish the terrors of retreats by calling them sanatoria or mental hospitals. The last title carries a subtle suggestion of self-complacency, for how great must be that mind which can contain an entire hospital! I suggest, with some diffidence, that it would be still more impressive to call the hospital after a part or faculty only of the mind. We might call it, for instance, an imaginary hospital. Following the same easy and efficacious method, alienists propose, when I show that what they call causes are not causes, to nullify my criticism by altering the name and calling them *ætiological factors*. One of my ways is to call a spade a spade, but alienists prefer to call it an agricultural implement. It is indeed a people that do err in their hearts, for they have not known my ways.

So far I can follow Moses, but when he loses his temper and proceeds to swear at his recalcitrant people, I must renounce his leadership. Falstaff declared that he was as poor as Job, but not so patient. I, on the other hand, may justly claim to be more patient than Job, though perhaps not quite so poor. His period of affliction was but brief. His friends sat by him in silence for a week, and the whole of the subsequent discussion on Moral Conduct as a cause—I beg pardon, an *Ætio-*

logical Factor—in Good Fortune could scarcely have lasted for more than another week, after which his trial came to an end ; but I have suffered my fellow alienists, as gladly as I possibly could, for forty years, and for the whole of that time they have erred in their hearts and have not known my ways.

Moreover, though Job was less irritable than Moses, and did not go as far as actually to swear in his wrath at those who were so wrong-headed as to take the other side in the discussion, and to refuse to adopt his views, yet it must be confessed that his patience and forbearance have been a good deal exaggerated, and fell far short of the meekness of Patient Grizzel or the Nut Brown Maid. More than once he was within an ace of losing his temper. "No doubt," said he, "but ye are the people, and wisdom will die with you. But I have understanding as well as you," and so on. No one can accuse me of such petulance, even towards psycho-analysts. If they were to bring forward an argument, or anything that could be passed off as an argument, or even anything that courageably resembled an argument, in favour of their crazy system, I should examine it, I trust, with patience, and with what gravity I could muster ; but though it is my way, it is not their way to give a reason for the faith that is in them. It is a people that do err in their hearts, for they have not known my ways.

The following cases have occurred in my practice in a period of about three years :

CASE I.—Footman, æt. 27. Suffered for years from severe headaches, and for the last four weeks from that form of sleeplessness which consists in inability to get to sleep. For a few days suffered from attacks of dizziness, and one very hot afternoon, in one of these attacks, he acted so strangely that he was taken to Bethlem, where he talked a great deal about the country being infested with foreign spies. (This was before the war.) He eats but little meat, but is very fond of fat—fat meat of any sort, butter, and dripping, which he spreads thick. Has four cups of tea per diem, with three lumps of sugar in each, or nearly a quarter of a pound in all. He was told to knock off his fat, butter, dripping, and sugar, and to eat more meat. During the next week he had one bad attack of headache and dizziness, and two slight headaches. During the second week two slight dizzy attacks, but no headache. In each of the next weeks he had one bad headache,

and after this they finally ceased. He was now sleeping well, and completely recovered.

CASE 2.—Woman, æt. 53. She feels muddled and dazed, and the feeling is so severe that it keeps her awake at night. With this there is pain in the head, which also is severe. These symptoms have been gradually increasing for three years, and are now bad enough to prevent her from working. She does not care for meat. Eats it only at one meal a day, and not more than five days a week. She is fond of fat, but says she does not eat a great deal. Does not eat much butter or sweets. She is told to regulate her diet, and soon ceases to attend. Presumably her symptoms are relieved.

CASE 3.—Clerk, æt. 26. A wave of confusion comes over him, and he falls down, but does not lose consciousness or hurt himself. For many years he has suffered from severe headaches, coming on once a month, so severe that they compel him to lie down. He goes to sleep and awakes prostrate. Even if they come on in the street he feels inclined to lie down then and there. His sight is not affected. He does not care for meat, lives chiefly on milk puddings. He is very fond of fat, and when he does have meat he eats the fat and leaves the lean. Takes very little exercise. Has had the headaches for fourteen years, and they have been gradually getting worse. He is told to stop the milk puddings, to reject fat, and to eat lean meat at least twice a day. At the end of a week he reported himself greatly improved, and then ceased to attend.

CASE 4.—Telephone operator, æt. 30. Very nervous. A sudden noise or being suddenly spoken to makes her start violently. She is losing her business memory—that is to say, she forgets what she has to do. She is so nervous that she screams when a dog comes near her, and cries when she enters a church. She suffers much from throbbing pains at the back of her head. She works in an underground room by electric light from 9 to 6. Her breakfast consists of bread-and-butter and tea. Lunch, tea and a bun. The same for tea. For supper she has three or four days a week a chop or eggs and bacon; on the other three or four days bread-and-butter. She is told to adopt a different diet and eat more meat, but as her wages are only 14s. per week she says this will be difficult. She ceased to attend, and the progress of the case is unknown.

CASE 5.—Married woman. She has been depressed for several years. The depression is now so severe that she contemplates suicide. Sleeps very badly, and has awful dreams. Cries for hours every day, and can take no interest in her work nor in her child. She eats little of anything; lives chiefly on bread-and-butter; does not care for fat, but is very fond of butter, and eats a great deal of it. Drinks much tea, and likes it sweet. Told to leave off sugar, to reduce her bread-and-butter to bread-and-scrape, and to eat meat. For the first week she did not improve, but it appeared that she had not modified her diet except in leaving off sugar. The necessity of complying with instructions was impressed upon her, and the following week she admitted, with evident surprise and reluctance, that she was better. She had not cried once, and now had hopes of recovery. Hitherto she had been certain that she would either die or go mad. From this time she improved so much that she slept soundly every night, became quite cheerful, and spoke with enthusiasm of the treatment, saying it had worked a miracle. She was told she need not attend any more, but three weeks afterwards she appeared again, having suffered a relapse. She said she was as bad as ever, but this was evidently an exaggeration. She was, however, very depressed; and upon inquiry it appeared that she had become pregnant. During her pregnancy she continued depressed, but with wide fluctuations. She dreaded her confinement, having had a very bad time with her previous child. However, it passed off fairly well, but she attended again with her month-old baby, with all her old symptoms as bad as ever. She was told to wean the child, and on the next visit she had improved, though the child was only partly weaned. She was urged to wean it entirely, which she did, and this time she rapidly improved, and in two or three weeks was completely well.

CASE 6.—Married woman, æt. 26. She is very depressed at times, but her chief trouble is that she is so muddled about her work. She has always been such a good manager, but now, though she knows what she ought to do, she cannot do it. She has to be told what to do even in the simplest domestic duties, such as getting the baby's bottle ready. She is depressed by the sense of her own unworthiness, and imagines that her home, her husband, and her children are

dirty, and that it is her fault. She has two children, and her husband, who, when in work, earns about 24s., has been out of work for six months. She has been managing her mother's house as well as her own, and has half-starved herself in order that the children might have enough. The almoner's services were requisitioned, work was found for the husband, the patient was enjoined and assisted to get proper food in proper amounts, and in a month had lost all her symptoms.

CASE 7.—Salesman, æt. 27. For seven years he has had a gradually increasing confusion of mind. When he hears people talking he does not understand what they say; it is as if they were speaking in a foreign language. When told to do anything he stands and looks stupid, until after a time it dawns upon him what is meant, and he does correctly what he is told. He is sometimes told that he does not know what he is talking about, and he says it is quite true that on these occasions he does not know. On one occasion on his way home he asked twenty or thirty people to direct him, though he knew the way quite well. He has only two meals a day, and meat at only one of these, and then not much. He had six cups of tea per diem with two lumps of sugar in each—nearly a quarter of a pound in the day. He was told to leave off his sugar and eat meat twice a day and more of it. At the next visit he was much better, and then ceased to attend.

CASE 8.—Married woman, æt. 25. She says: "I have a funny feeling in my head, I feel half dazed, and don't know what I am doing. I feel I can't settle myself; I am so restless, I can't keep still. I feel as if I want to get about and do my work, but I am half silly, and can't do what I want to. I go off into screaming fits as soon as I am left alone; I don't know why, I am not afraid of anything. And I am so depressed. I suffer much from shooting pains through my head." She has meat always once a day, and sometimes twice, but not much. Has six cups of tea, with two lumps of sugar in each, and is very fond of butter. Eats the best part of half-a-pound per day. She is told to knock off almost all her butter, and to eat bread-and-scrape, and to increase her ration of meat. In a fortnight she was much better. Her head, she said, was not quite as it should be; every other day she feels all right, but on alternate days she is much troubled. In another fortnight she was practically well, and thereafter ceased to attend.

CASE 9.—Dressmaker, æt. 28. For three years she has become more and more depressed and nervous, and during the last six months has been very bad. She is subject to attacks of pain in the head which used to last a few hours and went off if she lay down and kept quiet; but now they last two or three days and nights, and sometimes for a week. They are brought on especially by railway journeys, even if brief. She is alone all day from 6.30 in the morning until 8 at night. Does not like sweets, but is fond of fat and eats a great deal of butter, fat meat, and fat bacon. No instruction as to diet was given to her on her first visit, and for the next fortnight she did not improve. Then she was told to reduce her butter to a scrape, to renounce fat in all forms, and to eat more of the lean of meat. In the following fortnight she had but one attack, but this was very severe. The journey by rail from Surrey gave her no discomfort. In the next week she had no attack until she took the journey to see me, which brought on a very slight one. In the following fortnight she had several attacks, one of which lasted all day and part of the night; the other three were slight. In the next fortnight she had but one attack, which, however, lasted all day, and a slight one brought on by the railway journey. In the next fortnight she had no attack, and then ceased to attend.

CASE 10.—Married woman, æt. 33. For three months she has suffered from "nervous debility," by which she means that she is low-spirited, weeps for no reason, trembles, and imagines that something awful is going to happen. She is worst in the morning, improves as the day goes on, and is all right by tea-time. She is much alone, her husband being a clerk and absent all day, and she has no children. No note was made of her diet, but it must have been found faulty, for she received instructions to alter it. At the end of a week she was no better, but on inquiry it was found that she had not followed the prescribed diet. She was told to observe it strictly, and at the end of a week she reported that she had no depression to speak of. At the end of another week she reported herself well.

CASE 11.—Married woman, æt. 55. A feeling rises from her feet to her head, where it becomes a tightness, and she feels sometimes as if she had had a blow on her head, sometimes as if her brains were being drawn out. The strange feeling

in her head often wakes her in the night. She lives chiefly on bread-and-butter, but does not take very much butter; does not care for fat or sweets. Eats very little meat, never more than 2 oz. per diem, and some days none. She was told to eat meat twice at least every day, and in larger quantity. She did not attend again, but three months afterwards I heard from her that she became so rapidly better that she did not think it worth while to attend any more.

CASE 12.—Labourer, æt. 45. For twenty years he has suffered at increasingly frequent intervals from severe pains in the head, coming through to the eyes. It comes on in the morning and lasts all day. Sleep is the only thing that relieves it. He looks much distressed, and says it drives him distracted, and he loses many days' work through it. Cannot eat fat, does not like it, but is very fond of butter. Lives chiefly on bread-and-butter and cake. Drinks about three pints of tea per diem, in which he takes, I find by calculation, from $2\frac{1}{2}$ to 3 lb. of sugar per week. He was told to knock off his butter and sugar and to eat more meat. He returned in a fortnight in high spirits, extolling the treatment enthusiastically, and reporting that he had had no headache at all for ten days, a longer interval than he had known for many years. After this he ceased to attend and may be presumed to have recovered.

CASE 13.—Married woman, æt. 28. Three weeks ago she had some "silly fancies." Turned against her husband and accused him of trying to poison her. Had a friend to visit her, and when the friend was gone the patient had a horrid fear that she was not gone. The patient had quarrelled with this friend and called her a liar. She now says that her husband is one of the best fellows going, and so is the friend she turned against. She has no such silly fancies now, but her memory is bad and her mind is confused. When she puts a thing down she cannot remember what she has done with it. She does not always know where she is, and sometimes gets out of a tram when her journey is only half complete. She is alone all day, her husband leaving home at 7 a.m. and not returning until 6.30 or 7 p.m. She has meat always twice a week, but not always three times. Lives chiefly on bread-and-butter. She was told to regulate her diet, but I do not know whether she did so. She attended for a month,

during which time she did not improve, and she then ceased to attend.

CASE 14.—Married woman, æt. 44. She suffers much from pain in the head, which keeps her awake at night, so that some nights she does not sleep at all. In addition to this she hears voices and sees visions. She constantly hears people talking, all day and all night. The voices are quite distinct, sometimes loud, sometimes a whisper; some of them are the voices of people she knows, others are strange to her. They repeat everything she says and threaten her. Once she was told that her husband was at Paddington Station waiting for her, and she took a cab and went to meet him. The voices abuse her, and their language is cruel, dreadful. Besides this, she sees faces at the window and at the door. Once a woman met her on the stairs, addressed her by name, and asked her about a ring she was wearing. The woman then went into a closet on the stairs. The patient followed her into the closet, but found it empty. The same night when she went into her own room she found three men there. One was a chef whom she knew, the others she did not know. One of these demanded money of her; and the chef said he was doing a dinner at Covent Garden and asked her to help him. She was about to give money to the man who asked for it, but when he stretched out his hand there was nothing to drop the money into. She could see the carpet through his hand. Up to that moment she had thought the men were real, but then she knew they were not. She put down the money and fled. She first began to see visions and hear voices eighteen months ago. They are so real that she cannot help thinking they are real people talking to her, though she tries to think they are only fancy. She is not fond of meat, goes without it three days a week, and on the other days eats very little, and then only the fat. She is very fond of fat and butter. Lives chiefly on bread-and-butter, the butter spread thick, and puddings. She used to like meat, but left it off two years ago. She was advised to alter her diet, to eschew butter and fat and eat meat. She did not attend again.

CASE 15.—Married woman, æt. 50. Has suffered as long as she can remember from incapacitating headaches. Wakes with them in the morning, and they go off towards night. She eats meat every day, but "so little," not more than 2 oz.

Cannot eat sweets, but is very fond of butter ; spreads it thick upon her bread, and lives chiefly on bread-and-butter. Advised to alter her diet. Did not attend again.

CASE 16.—Mechanic, æt. 27. "My mind," he says, "is always concentrated on myself. I suffer from a pressure at the back of my head. I am always wondering what is going to happen—whether I am going to fall down or faint away. I cannot sleep ; never go to sleep until 2, and wake at 4 or 5." He never eats meat more than four days a week, and for the last two months only in the form of a ham sandwich, which constitutes his dinner. Eats but little fat, and not much butter, but is fond of dripping. Was told to modify his diet, but the progress of the case is unknown.

CASE 17.—Married woman, æt. 53. Constant pain in head, which keeps her awake at night. Her mind wanders, and she pictures horrible things, such as people drowning. She sees these things when between sleeping and waking. Forgets what she has to do. Eats meat not more than three times a week, and then very little. Is fond of butter, spreads it thick, and eats a good deal, for she lives chiefly on bread-and-butter. Told to eat meat daily and reduce the bread-and-butter to bread-and-scrape. She did not carry out these instructions very faithfully, but slowly improved until in three months she ceased to see the pictures, slept better, and lost the pain in the head. After this she relapsed, the pain returned, and she saw people in her room at night. I then set the almoner at her to see that my instructions were carried out, and again she improved, this time rapidly and much. Subsequently, on the supervision being taken off, she again relapsed.

CASE 18.—Married woman, æt. 36. For eighteen months she has had attacks about the time of her periods of laughing and crying, with a feeling of suffocation. She forgets that she has done a thing, and does it over again repeatedly. She suffers much from headache at a spot on the right side of the forehead. Husband has been out of work for eighteen months. She has had no meat for a long time. Never buys any. For the last eighteen months has lived on oatmeal and rice. She ceased to attend, and further progress is unknown.

CASE 19.—Widow, æt. 70. Pain in the head, giddiness, sleeplessness, shocking dreams. Between sleeping and waking

has visions of murdering people. Lives chiefly on milk puddings and a little fish. Meat once a week, fish twice, and but very little of either. Does not get to sleep till between 3 and 4, and sleeps only for two or three hours. Told to eat meat every day, and a larger ration. In a week she had increased her sleep to four to five hours. In a fortnight she lost the visions. In three weeks she was sleeping well and did not dream. In four weeks she was sleeping ten to twelve hours, but still suffered from pain in the head. In seven weeks she lost her headache, slept well, and did not dream. Volunteered that she was better than she had been for three years.

CASE 20.—Married woman, æt. 42. Headache and throbbing of the head. Very nervous. Imagines things—that someone is fumbling with the handle of the door, and trying to get in ; that her husband is unfaithful. Has no strength, and can take no interest in things. Bursts out crying without reason, and is depressed. Cannot give her mind to anything. Everything seems too much for her. It is becoming too much trouble to wash her child. She has meat once a week only—on Sundays. Told to eat meat daily. At the end of a month her depression had nearly gone, and she had no difficulty in attending to the child. Went for days without crying. She continued to improve, and in two months ceased to attend.

CASE 21.—Servant, æt. 56. Pain and pressure on top of the head. Sleeps badly. Depressed. Cries a great deal, and thinks everyone is against her. Eats fat and butter, but not in excess. Is fond of sweets, and eats much cheese. Told to eschew cheese and sweets and eat more meat. She improved slowly and irregularly. In six weeks she was able to sleep "quite well." Her spirits improved a great deal : she lost her headache, but she was not well when, at the end of four months, she ceased to attend.

CASE 22.—Married woman, æt. 24. Her nerves are bad. She cannot bear to be alone. Feels that if left alone she would commit suicide. So depressed that she always wants to sit down and cry. Terribly irritable. Has fits of panic with trembling. Lives chiefly on bread-and-butter and milk puddings. Eats a little meat every day, but very little, as she is not fond of it. In a fortnight she reported herself a little better. She had been eating more meat, but still not much.

She was told that she must eat more, and at the end of a fortnight she reported herself very much better. In six weeks she could sit alone in a room if she knew there was someone else in the house. Had ceased to cry and had no trembling fits. In another fortnight she was practically well and ceased to attend.

CASE 23.—Unmarried woman, æt. 22. Three years ago she was left by the death of her mother in charge of the house and of two younger sisters. For twelve months she has been out of health. Wanted to shut herself up and be away from everyone. During the last few weeks she has become worse. She imagines things, sees ghosts—her mother and brother, both of whom are dead. Last week she cried a great deal, and the week before kept laughing without provocation. One day she lay on the floor all day. She sleeps very little. No headache. For many weeks past her appetite has been very bad. For a fortnight she has eaten scarcely anything, and for the last three days nothing at all. Her sister was told to urge and compel her to eat plenty, especially of meat, and carried out the instruction. In three weeks she was sufficiently improved to be sent to a convalescent home in the country, with instructions as to diet, for three months. She returned quite well. Said she feels all right, never cries or laughs irrationally, never sees ghosts; eats and sleeps well.

CASE 24.—Male. Pain in the head. Depression. Feels as if he were going out of his mind and as if he must do away with himself. Sleepless. No reason for the depression, and he cannot understand why he should feel it. Eats no breakfast, but has two raw eggs in milk. Not fond of fat, but very fond of butter and eats a great deal of it. Two eggs in milk for tea. Told to revise his diet, omit the butter and the yolks of the eggs, and to eat meat. In a week the pain in the head was lessened, but the depression and other symptoms continued. In another three weeks the headache was still further improved and he felt "much brighter." He then ceased to attend.

CASE 25.—Housemaid, æt. 28. She has "dreadful thoughts." Her mind is confused. She "feels desperate." Cries a good deal and mopes. Cannot sleep. Cannot bear to be left alone, but people being with her irritates her. This has been gradually coming on for a year. She has not touched meat for eighteen

months. Has no breakfast and lives chiefly on bread-and-butter and milk puddings. She never has headache. She was told to revise her diet and eat meat, but she was not efficiently supervised, and it is doubtful whether she carried out the instructions very faithfully. At the end of a month she reported herself "certainly improved," and then ceased to attend.

CASE 26.—Widow, æt. 77, says : "My head is in a muddle. I sit down to write a letter and I know what I want to write, but I can't write it. I often find I have written it wrong. All of a sudden things go blank and I leave words out. I am of a very worrying disposition and am always depressed." She suffers much from headache, and has to spend one day in every week in bed on account of it. For two years she has eaten no butcher's meat, but occasionally she eats an egg, or a little fish or chicken. Lives chiefly on milk puddings. Took to a vegetarian diet on account of indigestion. Does not eat much fat or butter, but drinks large quantities of milk. Seen once only.

CASE 27.—Married woman, æt. 32. "I am tired of everything and everything is a worry. I can't think. I have such pain in my head it makes me forget everything. I sleep badly, and all night my mind is on the work. There is something in my head that causes everything to be jumbled up." She eats large quantities of raw rice and starch. She eats more than a teacupful of rice every day (a tablespoonful of rice will make a pudding large enough for four people). She does so because it is company for her and stops her from thinking. She goes without her meals and eats rice instead. Seen once only.

CASE 28.—Farmer, æt. 34. Lacks confidence in himself. Cannot concentrate his mind upon his work. Incapable of mental exertion. Little things worry him excessively and unreasonably. Sleeps well, but dreams much. No headache. Bad family history. Has been a vegetarian for three years, living chiefly on grape-nuts, bread-and-butter, rice, macaroni, sago, and tapioca. Cannot eat fat and is very moderate with butter. Told to rearrange his diet and eat meat two or three times a day. In a month he returned much improved. He had an assured and confident demeanour ; said he had a better grip on his work and had no difficulty in concentrating his mind.

CASE 29.—Married woman, æt. 35. Has horrid thoughts and feels as if she were going out of her mind. Silly things come into her mind. The knives on the table suggest to her to do horrible things—injure herself or someone else. She thinks she has done things that she knows she has not done—things like injuring people. She has frequent headaches, with “golden zigzags.” Never eats breakfast. Dislikes meat, often goes without, and when she takes any it is very little. Does not like fat, but is fond of butter and spreads it thick. Seen once only.

CASE 30.—Married woman, æt. 48. “I can’t think. Everything seems altered. I can’t remember what things look like. I have two children, and I can’t remember what they are like. Oh, yes; I know them when I see them. Everything seems getting more and more strange.” Husband says she complains much of headache and sometimes of giddiness. Eats very little meat and a great deal of butter. Lives chiefly on milky puddings and bread-and-butter. Seen once only.

CASE 31.—Married woman, æt. 37. Has a muddled feeling in her head and is apprehensive that something dreadful is going to happen, and such awful depression. Becomes frightfully tired after trifling exertion, but the worst is the confused, muddled, dazed feeling in her head. Suffers from headache. Has lived in India, where meat or poultry has been on the table two or three times a day, but the quality being so bad she rarely took it. Not fond of sweets or fat, but eats much butter and cream, and her chief diet is milky puddings. Seen once only, but I heard some months afterwards that she had taken my advice about her diet and was “almost well.”

CASE 32.—Man, æt. 42. Insomnia and depression. Has attempted suicide three times. Becomes confused in mind, so that he cannot take orders in his own shop. Not a great eater of meat; once or twice a week he goes without, and when he does take any it is only once a day, and then very little—not more than 2 oz. Fish twice a week. Drinks much milk. When he feels low, which is pretty often, he eats nothing. Seen once only.

CASE 33.—Schoolmaster, æt. 29. Breaks down and cries for no reason; has to rush out of the room to save himself from making an exhibition of himself by an outbreak of weeping. On one occasion he rushed off to a doctor, and as soon

as he reached the consulting-room he broke down and wept. There has been some tendency to this for three years, but he has easily overcome it until the last month, during which it has become intolerable. I saw him on May 1st, just after Easter, and he had been keeping Lent very strictly, but previously he had eaten very little meat, never more than one cutlet or an equivalent amount in a day. No other error in diet. No headache. Seen once only, but I heard from his doctor a month after I saw him that he had reformed his diet and was greatly improved.

CASE 34.—Man, æt. 66. Looks much older than his age, and complains of loss of memory of the usual senile type. Forgets in five or ten minutes an occurrence, such as a visit from a friend. Begins to be suspicious and to fancy that his money is being kept from him. He is very careful of his money, but forgets where he puts it. Forgets the names of his children. Suffers much from neuralgia. Is very fond of sweets, jams, and puddings. Spreads sugar on his bread-and-butter. Eats meat only once or twice a week, and then very little. Seen once only.

CASE 35.—Male, æt. 18. "I can't work. I can't do anything. I can't apply my mind to anything. I have a difficulty in getting up in the morning. It sometimes takes me an hour to dress. I get thinking about other things." A friend says there are times when the patient seems lost in thought and stands stock still, doing nothing; but when spoken to he can rouse up and go on with his work. He says he is a very bad meat eater. Never eats as much as there is on a mutton chop, nor anything near it. Not nearly as much as a slice off a sirloin. Lives chiefly on puddings, cakes, and bread-and-butter. Not fond of fat or butter. No headache. He is 5 ft. 10½ in., and still growing. Weighs 10 st. 5 lb. Seen once only.

Here are recorded a number of cases of persons who have sought relief from mental disease; and the first comment that they call for, that they cry aloud and clamour for, is that, of thirty-five cases of mental disease, only one could be certified as insane. I insist upon this with special emphasis because of the universally accepted doctrine that disorder of mind is equivalent to insanity—that disorder of mind and insanity are the same

thing. The contention that I have urged for so many years, that unsoundness or disorder of mind is not necessarily madness, has always been received by the people that do err in their hearts with contemptuous incredulity and open derision. Now, whatever my faults, and whatever my fads, I think even this people will admit that a patient must be undeniably sane if I cannot certify that he is insane; and of these thirty-five patients I could not have certified more than one; that is to say, 3 *per cent.* Of course, I do not expect this to make any impression upon my alienist friends, but I beg them to note this indefeasible demonstration that mental disease, mental disorder, or unsoundness of mind, is not the same thing as madness, but that many and varied mental disorders are compatible with complete sanity.

The peculiarities in diet which preceded and accompanied the mental disorder in these patients were mainly of two kinds—deficiency of meat, or excess of fat, starch, or sugar. According to current practice, the peculiarity of diet would be regarded as unquestionably the cause of the mental disorder; but so to regard it would be quite unjustifiable unless the association of the peculiar diet with the mental disorder satisfies one or more of the conditions stated above; and the reason is clear. Vegetarianism is common enough: mental disorder is common enough. On the doctrine of Probability it is certain that the two must coincide in the same person in a certain number of cases—in a number that cannot be exactly ascertained for want of exact figures. There is, besides, another source of possible error. It is quite rare for vegetarianism to be the only fad of the vegetarian. Almost always he has a stock of fads. He cultivates a number of what may be called anti-isms. He is anti-alcoholist, anti-vivisectionist, anti-vaccinationist, anti-capitalist, anti-bellumist, anti-patriotist. He is anti-penalist, and would provide all gaols with pianos and newspapers, beer and skittles. He is anti-restraintist, and would abolish all lunatic asylums, rightly from his own point of view, for so he would escape the risk of losing his own liberty. It is, no doubt, possible to hold some of these opinions with reasoned conviction, and after examination of the evidence; but it is not so that the faddist holds them. He holds them as mere prejudices. He attaches to them a very disproportionate importance. He advocates them in season and out of season,

and with intemperate zeal. He erects them into a religion, of which he is a fervent missionary, and of which he is proud to be a martyr in any small way which does not interfere too much with his comfort, or if it does, brings him a consoling notoriety. He regards any means of proselytising as justifiable, and lies conscientiously in furtherance of his fads. A mind of this nature is unbalanced. It is not insane, but it occurs in people who have insane relatives, and who are apt themselves to become insane. We should expect, therefore, to find among vegetarians an undue proportion of insane persons. For this reason I have omitted from the cases adduced every case in which abstention from meat was a fad, and have included those only in which meat was eschewed either because it was distasteful or because it was not procurable.

That very definite peculiarities in diet did precede and accompany the mental disease in the cases I have recorded is unquestionable. What is now to be determined is whether this antecedent and accompaniment can rightly be considered a cause. To this end we must make four inquiries :

First, is the action that we conjecture to be the cause, that is, the action of the diet upon the patient, isolable? In other words, can we separate it from other actions on the patient so as to ascertain beyond doubt that the change in the thing acted on is due to that action, and to that alone? At first sight it seems that we cannot, for we know very little of what other actions tending to produce mental disorder may or may not have been incident upon the patient at the time. In some of the cases—viz., Cases 10 and 13—the patient was alone from morning till night six days in the week, which we may conjecture was inimical to mental health; in other cases there had been worry, anxiety, and other stresses. While, however, we never completely isolate the action, we can produce an approximate isolation by withdrawing the action that we surmise is the cause, and noting any difference in the effect during its absence, and, it may be, allowing it to act again and noting the effect of the addition. In several of the cases the rectification of the diet was followed by improvement of the mental health, and in some cases this improvement was rapid or immediate, and was great. In this respect Case 5 is extremely instructive. This patient improved very decidedly within a week of the rectification of her diet. She continued to improve, until at

length she spoke of her recovery as a miracle. Then she had a relapse. The relapse was not coincident with a return to the faulty diet, but it was coincident with what, for the purpose in hand, amounted to much the same thing—that is to say, with her pregnancy. She now took, it is true, enough proteid to nourish her own tissues, but it was not allowed to nourish her own tissues. It was seized upon at once by the growing foetus, whose demands were paramount, and she was deprived of it. Nor did she improve when the child was born, but then, when the child was born, it was still her own food that nourished it. When, however, she weaned the child she rapidly recovered. It is difficult to avoid the conclusion that in this case the mental disease was dependent on the deficiency in the ration of protein, whose fluctuations it followed so closely.

It is one of the disadvantages of consulting and hospital practice that a large proportion of the patients are seen once only, and the result of one's advice remains unknown. Of the thirty-five cases here recorded, fourteen were seen only once, and nothing certain is known of their progress; but of other cases seen only once inquiries were made, and it was found that they had so greatly improved that they did not think it worth while to come again. It is a fair inference, therefore, that some of those who were not heard of had the same reason for ceasing to attend. Taking, however, those only whose subsequent history is known, all but one recovered, or very greatly improved, when their diet was rectified; and these were more than half of the whole number seen. The total number is too small, it is true, to draw any very large or confident conclusion from, but as far as they go they show, among those as to whom the result is known, a rate of between 94 and 95 *per cent.* of recovery or of very great improvement, and this is too striking to be ignored.

Application of our second principle, that of constancy in the association of the effect with the possible cause, does not yield such a favourable result. It is certain that the positive association of an excess of fats or carbohydrates, or a deficiency of meat, in the diet with mental disease in the consumer is not constant. The denizens of Arctic climates, who live largely upon blubber, are not known to suffer disproportionately from mental disease, nor are those considerable populations of Eastern countries who live upon an exclusively vegetarian diet;

but then it is clear that the circumstances are not the same, and no principle of logic is more important, though it is not mentioned by Aristotle nor acknowledged by professors of logic, than that circumstances alter cases. That indulgence in fat which may be disastrous to the dweller in a temperate climate need not be anything but beneficial amid eternal ice and snow ; and that abstinence from meat which may be fatal to an individual or a member of a race that is accustomed to a carnivorous diet may be innocuous to one who and whose ancestors have never tasted meat. Moreover, there can be little doubt that what is harmful in the absence of meat is the absence of protein, and this may be made up by consumption of vegetable proteins.

Nor is the negative association in the least degree constant. There is abundant experience that mental disease is by no means confined to those who indulge excessively in fats and carbohydrates and those who refrain from eating meat.

The third principle cannot be applied for want of data. When there are a great many people who suffer from mental disease, and in the same population a great many who commit these errors of diet, the doctrine of Probability assures us that there must be some in whom the two will be combined casually ; and among the cases recorded No. 13 seems to be such a case. But it is quite impossible to apply this principle, and to discover whether or no the combination of mental disease with error in diet is more than casual concurrence will account for, until we know (1) the total population ; (2) the number of cases of mental disease ; and (3) the number of cases of error in diet, in the population. In the absence of data no conclusion can be drawn.

The fourth principle, however, is more fertile in results. It assures us that if a certain change in a thing follows, though only occasionally, an action on that thing, then, although from the mere occasional sequence we are not justified in calling the action the cause of the change, yet if in each case of the sequence the change exhibits a constant character, we may then properly infer that the sequence is causal. To take a cognate instance : insanity follows, though only occasionally, excessive and prolonged drinking of alcohol ; but since insanity often occurs without this antecedent, and since the antecedent often occurs without insanity-following, it would be quite unjustifiable to

assert, on the mere ground of antecedence and subsequence, that the drinking was the cause of the insanity. When, however, we find that whenever insanity does follow prolonged and excessive drinking the insanity always has certain peculiar characters, which are never found in insanity otherwise occurring, the case is different. This constant quality in the result does justify us in presuming that the constant antecedent of that quality is the cause of the insanity. Can we then apply this principle to the cases before us? I think we can. Here it becomes necessary to separate the two factors of excess of fats and carbohydrates on the one hand and defect of meat on the other, and to consider each by itself.

If the cases in which an excess of fat was consumed are examined it will be found that whatever other symptoms they complained of, they all suffered from severe headache. This is not a new observation. The connexion has been thoroughly established by Dr. F. Hare in his excellent book on the *Food Factor in Disease*. The cases here adduced are a mere addendum to his observations, and pretend to no originality. They are, however, of value as corroboration by an independent observer of his views. While, however, the headache is the most prominent and troublesome symptom in these cases, it is not the only one. It is well known that attacks of migraine are often accompanied by mental confusion, and it appears from some of the cases here recorded that excess of fat in the diet is accompanied in them by confusion of mind, which occurs even at times when the patient is not suffering from headache. There is no case among those here recorded in which headache was complained of when there was no excess of fat in the diet. From this it must not be supposed that I suggest excess of fat as the only cause of headache; I suggest merely that deficiency of meat alone is not a cause of headache.

It seems, however, that it is a potent cause of *confusion of mind*. In case after case in which the diet was subsequently found to be deficient in meat, the mental state is described in almost or quite the same terms: "I feel muddled and dazed"; "A wave of confusion comes over me"; "I am so muddled about my work"; "I have such confusion in my mind"; "I feel half-dazed, and don't know what I am doing"; "My mind is confused"; "My head is in a muddle"; "I cannot think"; "I have a muddled feeling in my head"; "I cannot apply my

mind to anything"; "I am half-silly"; "There is something in my head that causes everything to be jumbled up"; and so on.

Depression is almost as common, and is in some cases very severe. In several cases it led to contemplation of suicide, and in one to repeated attempts; perhaps, since they were repeated, they were not very determined, but still they were attempts.

Screaming fits and motiveless weeping and laughing occurred in several cases among the women.

Defects of memory, especially of the business memory—that is to say, forgetting to do things at the proper time—was noted in several cases. It is a part or a form of the mental confusion.

In three cases there were hallucinations, and in one of these the hallucinations were extraordinarily vivid, and were of sight and hearing coördinated. Case 14 would of itself serve as a text for a discourse upon the origin of ghosts and the nature of ecstatic visions, of celestial visitors, of supernatural revelations, and so forth. It is unfortunate that I was unable to follow up this case, and I may say that its very peculiar character makes it doubtful whether the mental state owed any of its origin to the diet, which, however, was certainly very defective. On the other hand, it could be urged that Cases 17 and 20 are halfway houses on the road to the same destination.

Many other inferences can be drawn from these cases, and there is one inference that will certainly be drawn, however much I may deprecate it and protest against it, and that is that I have asserted that every case of mental disease is due to excess of fat or to deficiency of meat in the diet. I make no such assertion. Obviously the cases here related form but a small proportion of those that have come under my notice since I first began, several years ago, to investigate the diet of my patients. In only a small proportion of cases could I find any definite fault in the diet; and where a fault existed, it was not always excess of fat or deficiency of meat. It surprised me to find in how many cases people live very largely on milky puddings, and I was in doubt in many cases how far the symptoms were due to deficiency of protein, and how far they were due to excess of starch and sugar. In Case 27 I have little doubt that much was due to excess of starch, and I always made a point of inquiring into the relative proportions of all the constituents in the diet.

A word may be said as to the method of inquiry. In this, as in all things, it is most important to avoid leading questions in opening the examination. My practice is to ask, What do you have for breakfast? and so on for each meal. The next question is, Is there anything to eat that you are particularly fond of? Meat? Sugar? Fat? Milky puddings? Then, Is there anything you particularly dislike? It is important to remember that people do not reckon butter as fat. Many patients declare that they dislike fat, and never eat it, but when the question is put to them, they will admit an inordinate fondness for butter.

It should be remembered also that there are wide differences in the capability of different persons to dispose of the fat, starch, etc., that they consume, so that what is moderation for one may be gross excess for another.

A point that, to economise space, is not brought out in the cases here recorded is that those symptoms that seem to be due to excess of fat, starch, and sugar in the diet, and that are relieved by diminishing these constituents, are almost always worse in the morning, clear up towards afternoon, and are often absent in the evening. Hence I never omit to inquire, What time of day are your symptoms worst? and whenever I hear that they are worst on waking in the morning and diminish as the day goes on, I make very stringent inquiry into the diet, no matter what the symptoms may be.

Finally, let me assert once more that I do not hold that there is only one cause of mental disease. If I did so hold, I should be little better than a psycho-analyst. My contention is, and I think it is borne out by these cases, and by the application to them of the true principles of ascertaining causation, that in a certain number of cases of mental disease, small in proportion to the whole, but considerable in the aggregate, the disease is due to error in diet, and can be cured by rectifying the error in diet.

Zola's Study of Heredity. By J. BARFIELD ADAMS,
L.R.C.P., L.R.C.S., M.P.C.

IN studying a case of insanity, the family history of the patient is a matter of considerable interest. But it is often difficult to obtain reliable information on the subject. In such researches one has to contend with ignorance and prejudice. Many people know very little about their ancestors or collateral relations. And further, the idea that insanity is a disgrace so pervades all classes of society, that a man is shy of speaking about the mental condition of his relatives, if it should chance to be, or have been, diseased.

For a good many years I have made careful inquiries into the family history of the cases of insanity or eccentricity which have come under my observation. It has been necessary to pursue these inquiries with patience, for often months and sometimes years have elapsed before I have been able to supply myself with certain missing details. Frequently I have been put on the right scent by mere accident, or by a bit of ill-natured gossip, for, although people don't like talking about their own insane relatives, they have no objection to discuss the psychical failings of their friends. But I cannot congratulate myself upon the result of my researches. Even now I have only three mental genealogical trees that I can look upon as in any way complete.

In the absence of the cadaver, well-drawn plates are of some assistance in studying anatomy. One can at least refresh the memory from them. All depends upon the faithfulness and skill of the artist. In like manner, seeing the difficulty there is in collecting data of family history, the fiction of a realistic novelist, who writes upon the subject, is not an unprofitable study.

In his Rougon-Macquart series of novels Émile Zola unrolls before us a genealogical tree, and he proceeds to demonstrate with great clearness and considerable detail the mental and physical characteristics of the individual members of the family. His object is to show the result of the fusion of a neurotic and degenerate race with, first, a stolid and healthy one, and second, with another which, though comparatively healthy, has become vitiated by alcoholic and other excesses. The various branches springing from such stocks are grafted on others more or less

healthy and are subjected to the stress of circumstance and environment, and the results noted.

No one ever painted from nature so honestly as Émile Zola did, and his pictures of disease, both mental and physical, have something of the accuracy of cases recorded in a physician's note-book. But, realistic as he is, Zola is an artist, not a photographer. Whatever be the medium in which he works, and sometimes it is horribly filthy, one can always see the strokes of the brush. In literature he is as great a master of chiaroscuro as Rembrandt is in art, although it must be confessed that in his work, as in that of the Dutch artist, the shadow not unfrequently overbalances the light. The composition of his pictures is admirable, though this is not always evident to the superficial observer, for in several of the novels of the series the minor characters appear to be over-elaborated, and to be placed in too prominent a position. But each story is not complete in itself, it is but a shred of a vast canvas, and when the work is viewed as a whole it is seen that every figure falls into its proper place, and that all the requirements of proportion are complied with.

But it is Zola's very excellence as an artist that mars for us his studies in disease. To increase the value of his high lights, necessary no doubt from a dramatic point of view, he lays stress on details, which, from a scientific standpoint, are of small importance, while others of greater interest to the physician he suppresses or passes over with brief notice. Perhaps, however, one may say that in doing so he is unconsciously true to nature. In the college lecture hall and in the pathological museum we can classify our patients, and label our specimens. In practice it is otherwise. Disease is rarely true to sample. It is the exception rather than the rule to meet with a case in which there is no symptom missing, no lacuna which we have not to bridge over with a plausible tag of theory.

Let us then study these novels of Zola as one does a series of anatomical plates, only remembering that the pictures are drawn by a man who, though firmly resolved to delineate every detail with scientific truth, could not divest himself of his artistic individuality.

It may be added that when one regards these books as biological studies, their *grossièreté* fades away, as does that of the writings of the Elizabethan age when looked upon simply as literature, and one has no longer to concern one's self with

the question whether such physiological descriptions as are found therein are advisable or even permissible in works of fiction.

The scene where the story of the Rougon-Macquart family opens is placed in Plassans, a little city which is supposed to be situated somewhere in the region where the last spurs of the Alps lose themselves in the lowlands of Provence. Those of us who have spent our summer holidays loitering among the out-of-the-way parts of France will remember several sleepy towns which would answer to the description that the novelist gives of Plassans. We recollect the belt of ruinous ramparts ; here converted into pleasant boulevards, and shaded with trees ; there encroached upon by neighbouring gardens. One or two of the ancient city gates are still standing, with their crenellated battlements fringed with grasses and wild-flowers.

In the very oldest part of the town rises the cathedral, an ancient structure dating back to the period when the arch *en plein cintre* still struggled with the *ogive*. Push open the padded doors, which swing back so silently behind you, and enter the church. When your eyes have become accustomed to the gloom, you see that the architecture of the interior is very plain. But the glass in the windows is wonderful. The sunlight as it filters in is stained with hues of purple and gold, of sapphire and emerald.

The other public buildings of the city are not numerous. There is the *Sous-Préfecture*—for the town, in spite of its episcopal dignity, holds only a second-rate position in the *département*—an ugly, modern building standing on the *Place*, and in a side street one comes upon the *Mairie*, which is only distinguished from the neighbouring houses by the flag of the Republic floating above the main entrance.

The early morning is the best time to explore the city, for there is some life in it then. There is a daily market in the open space behind the cathedral, where peasants bring fruit and eggs and *salades* and other country produce for sale. One rambles on through the narrow streets, and suddenly one comes upon a little square, a veritable blaze of colour, where the stalls of those who sell flowers are grouped about a wonderful fifteenth century fountain.

In the afternoon the whole city goes to sleep, and in the evening it turns out to enjoy the cool of the day on the ramparts, or under the trees of the *Place de la Sous-Préfecture*.

Imagine all this, and you have some idea of the city of Plassans and the life of its inhabitants.

In the latter part of the eighteenth century a peasant, named Fouque, lived just outside the walls of Plassans. He cultivated his own land, and was one of the richest market-gardeners in the neighbourhood. This man was the last male of his race, which had become so degenerate that Nature seemed about to end it. He died mad in 1786, and we are given no further particulars of his case.

Fouque left one child, a girl named Adélaïde, born in 1768. In her childhood she had the manners of a little savage, and as she grew up her behaviour became still more strange, so that the neighbours said that she had the cracked brain (*cerveau fêlé*) of her father. Physically she was strong. She was tall and slender, had a pale complexion, and was undeniably handsome. The women of Provence have the reputation of being the most beautiful in France. Many of the Arlésiennes, for example, are endowed with the regular beauty of an ancient Greek statue.

In spite of the feebleness of her mind, this beautiful heiress had several opportunities of marrying well. But she rejected all the young and wealthy suitors, and six months after she was left an orphan, when she was about the age of eighteen, she married her servant, a man named Rougon, who came from the *département* of Basses Alpes. He was a rough, uneducated peasant, strongly built and healthy, slow witted, but, like most of his class, thoroughly alive to material advantages.

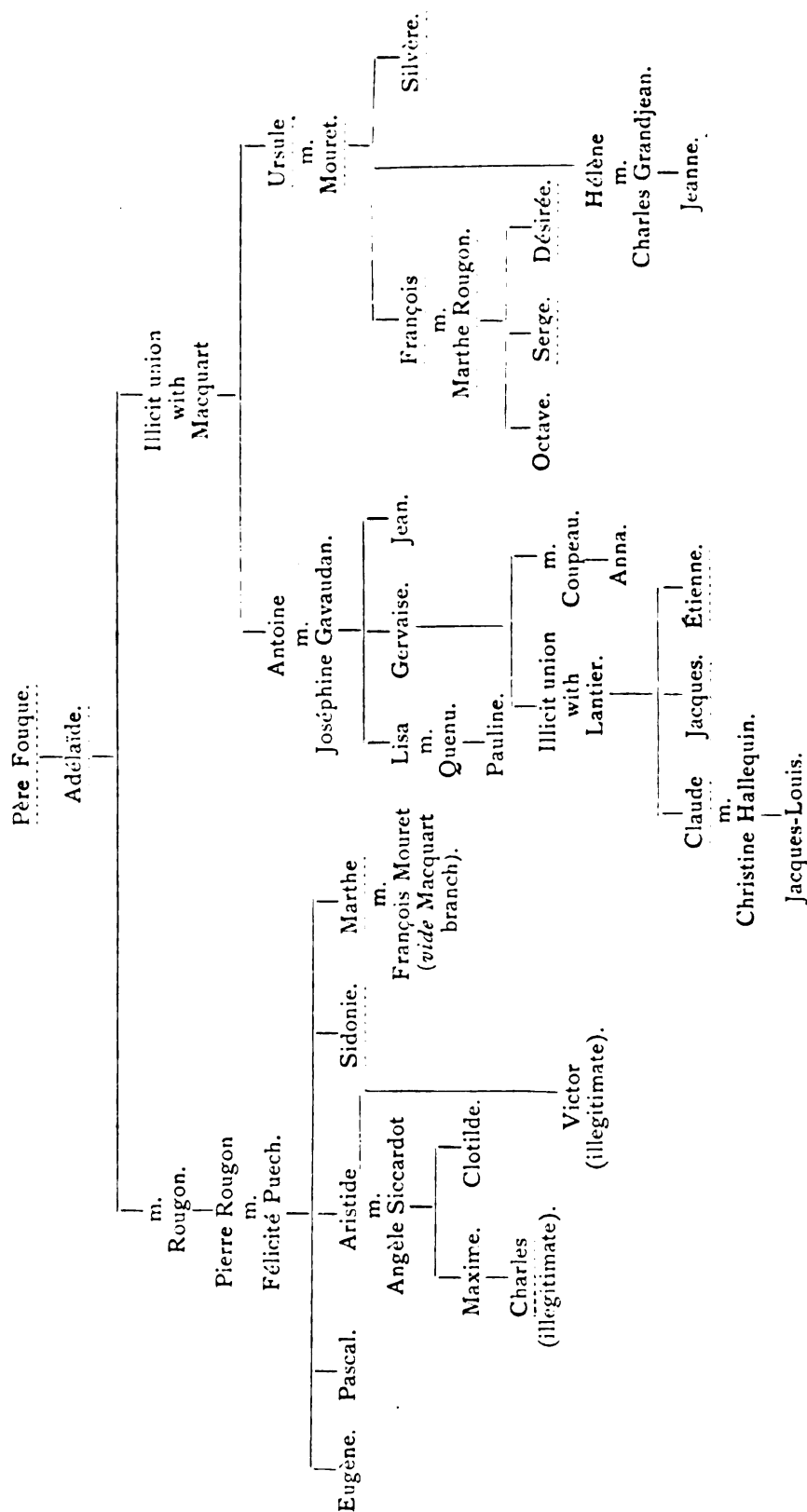
Of this union one child was born, a boy named Pierre. Three months after his son's birth Rougon died of a sunstroke, which he received one afternoon when he was weeding a carrot-bed.

After the death of her husband Adélaïde lived for some years in illicit union with a man named Macquart, who was a smuggler and a poacher. This man was physically strong and healthy, but he was lazy, had the instincts of a vagabond, was very dissipated, and drank heavily. He was killed in an affair with Custom House officers on the Swiss frontier.

Adélaïde had two children by Macquart, a son, Antoine, born in 1789, and a daughter, Ursule, born in 1791.

Before her marriage with Rougon, Adélaïde may be regarded as merely a feeble-minded woman, but one in whom the possi-

Genealogical Tree of the Rougon-Macquart Family.



[The broken line indicates the insane, epileptic, or otherwise degenerate members of the family.]

bilities of profound mental trouble lay dormant. Soon after her first confinement she appears to have had an epileptic fit, and subsequently these attacks occurred regularly every two or three months. During the years that she cohabited with Macquart she gave herself up to drink and other excesses. After the death of her paramour she became subject to long periods of depression, marked by delusions, hallucinations, and thoughts of suicide. Finally, after one brief gleam of affection for her grandson, Silvère, she sank into dementia, and was shut up in 1851 in the asylum at Tulettes, near Plassans, where she died in extreme old age.

Pierre Rougon, the eldest and only legitimate child of this woman, had a robust father, and was born when his mother was young, and at her best in mental and bodily health. There is no sign of insanity in his case. He resembled his father in body and mind, though possibly he was a shade more intelligent. One can easily recognise the man who, as Zola relates, swindled his mother out of her property, as the son of the rough peasant who married a feeble-minded and unprotected girl for her wealth.

In 1810 Pierre Rougon married Félicité Puech, the daughter of a rich oil merchant of Plassans; olive oil was the staple commerce of the city. At the time of her marriage Félicité was nineteen years old. Socially her husband's superior, she was a small, dark-complexioned woman, such as one often sees in the South-East of France. She was of a different type altogether to the handsome Provençale, represented by Adélaïde. She was clever and ambitious, and loved intrigue for the sake of intrigue. Her chief mental characteristics were envy of those who were better off than herself, and an invincible determination to obtain her own ends. There was no trace of insanity in her or in any of her ancestors.

This couple had five children, three sons and two daughters: Eugène, born in 1811; Pascal, in 1813; Aristide, in 1815; Sidonie, in 1818; and Marthe, in 1820.

Pierre Rougon, with the money of which he had swindled his mother, bought a share in his father-in-law's business, of which later on he became sole proprietor. In spite of his own cunning and his wife's cleverness, Rougon's affairs did not prosper, and he only succeeded in paying his way. Despairing of her husband as a social success, Félicité transferred her

ambition to her sons, and she struggled bravely with financial difficulties in order to give them a good education. She sent them first to the college at Plassans, and afterwards to Paris, where Eugène and Aristide studied law, and Pascal medicine.

Zola remarks at this point that "the race of Rougon was refined by the women. Adélaïde had made Pierre a man of average ability, fit for low ambitions; Félicité had endowed her sons with greater intelligence, capable of great vices and of great virtues."

Eugène Rougon resembled his father physically. He had the same massive, powerful body, with a square head and large features. But he presented "the curious case of certain of his mother's moral and intellectual qualities buried in the thick flesh of his father. . . . He had high ambitions, the instincts of authority, and a singular contempt for little methods and little fortunes." As an advocate at the bar of a provincial city such as Plassans he was a failure; but at the first breath of the political disturbances, which culminated in the *coup d'état* of 1852, he went to Paris, and succeeded in making himself so useful to Napoleon III that he rose to the highest offices of state.

Zola has been criticised as being untrue to nature in making a statesman out of this brutal grandson of a peasant. But such criticism is unjust. Eugène Rougon was not intended to be the portrait of a statesman. Statesmen are very rare, and were particularly so in France at that period. Even if we include Charles de Morny, it may be doubted whether among all the men who surrounded Napoleon III there was one who was worthy of the title. But if statesmen are very rare, bullies are very common, and in Eugène Rougon Zola has painted the portrait of a successful bully. For it must be remembered that between the village bully, the hector of a Municipal Council, and the strong man of a Cabinet the difference is only one of social veneer, and sometimes not that. Bullies love power for its own sake; statesmen as a means to an end.

Pascal Rougon, the second son, was intended by Zola to represent a member of a family who bore no resemblance to either ancestors or collaterals. "Pascal," says the novelist, "did not appear to belong to the family." His was "a case which gave the lie to the laws of heredity."

He was a physician, and devoted to science. Physically,

we are told, he was unlike the Rougons, and, mentally, he had none of the intense love of wealth and power which characterised his father and mother and brothers. But, it may be asked, was not this intense devotion to science only another form of the love of wealth and power—intellectual wealth and intellectual power? Pascal was undoubtedly the most amiable and unselfish of the family; but in the development of his character Zola has been more true to nature than he intended, and has allowed traits to reveal themselves which show that the physician sprang from the Rougon stock.

Pascal died of angina pectoris in 1874.

Aristide Rougon, the third son, resembled his mother physically, and he possessed also her mental characteristics of avarice, envy, and love of intrigue. But he had the sensual instincts of his father, and he loved wealth, not only for its own sake, but also for the enjoyment that it brought.

After wasting his time for years at Plassans he followed his brother Eugène to Paris, where, with some little help from the latter, he succeeded in making a fortune as a speculative builder on an immense scale. Losing this fortune, he turned to the Bourse. He established a wonderful joint-stock bank, with which were connected certain other mad schemes, such as the exploitation of a silver mine on Mount Carmel. The affair caused a furore. It was a veritable South Sea Bubble. Then came the inevitable crash, followed by a panic and harrowing tales of misery and suicide. But Aristide rose again from the ashes of the catastrophe, and when we last hear of him he is the all-powerful director of one of the leading newspapers of Paris under the Third Republic.

In 1836, while he was still at Plassans, Aristide married Angèle Sicardot, the daughter of a retired captain, who occupied his leisure with politics. This soldier, Zola says, was not a man of genius, but he was honest and energetic. Angèle was a frail, placid woman, chiefly remarkable for her love of dress and good living. She bore her husband two children: a boy, named Maxime, born in 1840, and a girl, named Clotilde, in 1847.

Angèle died of pneumonia in Paris before her husband made his first fortune. After her death Aristide Rougon changed his name to that of Saccard, and married a second wife, by whom he had no children. But he had an illegitimate child, named Victor, by a poor dressmaker.

Maxime Rougon or Saccard, the eldest child of Aristide, is the most villainous figure that Zola has drawn. In his character, compounded of vice and selfishness, there is not a redeeming feature. Physically he resembled his mother, mentally his father. He was educated at a miserable school at Plassans, where he early acquired immoral habits. When little more than a child he was plunged into the Sodom and Gomorrah of Parisian high life, as it was during the palmy days of the Second Empire, to which his father's wealth gave him the *entrée*. At the age of seventeen he had an illegitimate child, named Charles, by a maid-servant. He married an extremely wealthy girl, who was suffering from phthisis, from which disease she died a few months later. After his wife's death Maxime lived a life of egoism and luxury, and died of locomotor ataxia when he was little more than thirty years of age.

Charles Rougon or Saccard, the illegitimate child of Maxime, was an imbecile. At the age of fifteen he had the mind of a child of five. But he was extremely beautiful, and bore an extraordinary resemblance to his ancestor Adélaïde. He suffered from hæmophilia, and died in his fifteenth year of profuse epistaxis.

Clotilde, the second child of Aristide, was brought up at Plassans by her uncle, Dr. Pascal Rougon. Physically she resembled her mother, from whom she inherited a certain love of dress and a tendency to day-dreaming. But she was also endowed with the uprightness and energy of her grandfather, Captain Sicardot. She was healthy in body and well balanced in mind, and Zola more than suggests that what was evil in her heredity was eradicated, and what was good was cultivated, by the happy life she led in her uncle's house, and by the care which the physician exercised over her education.

Victor, the illegitimate son of Aristide, is said to have borne a remarkable physical likeness to his father. Thrown as an infant on the streets of Paris, and living, or rather herding with the lowest of humanity, he early developed the vicious precocity of the street arab.

When he was twelve years old he was rescued and placed in an orphan asylum. But it was too late to reform him. He sulked and thieved, and after having committed an unspeakable crime, he made his escape from the institution. He returned to

the life of an *apache*, and Zola leaves us in pleasing uncertainty as to whether he ended his days in penal servitude or under the knife of the guillotine.

We now return to the other members of Pierre Rougon's family.

Sidonie, the elder of his two daughters, resembled her mother, Félicité, both physically and mentally. She married a lawyer's clerk at Plassans, and the pair went to Paris to endeavour to establish a trade in olive oil and the fruits of Provence. The affair was a failure, and Sidonie was deserted by her husband, who died soon afterwards. This did not appear to distress the woman very much. She set up for herself in a mysterious sort of business, which was probably not very reputable. She devilled, in the fullest sense of the word, for her brothers, Eugène and Aristide, who were now influential men, and indeed for anyone else who chose to employ her.

Clever as Sidonie was, she revealed some signs of degeneracy. She was lacking in sexual instincts—the woman appearing to be lost or absorbed in the man of business to an unnatural extent. Such unsexed females are by no means uncommon at the present day, and may be the product of unnatural civilisation. Further, she had once been entrusted with the affairs of a ruined noble family, who believed that they had an interest in a debt, supposed to have been contracted by the Government of England with that of France in the days of the Stuarts. Sidonie, by the obscure process of reasoning common to superior degenerates, came at last to identify herself with the claimants of this debt. She exaggerated it to the sum of three milliards. It became a fixed idea. She bored everybody with the details, and even spent a good deal of money in investigating the matter.

At this point occurs what one cannot help regarding as a flaw in Zola's scheme of heredity. In *Le Rêve* we are told that fifteen months after her husband's death Sidonie had a child by an unknown father. This is clearly an afterthought, for no such event is hinted at by the novelist in *La Curée*, the story in which Sidonie originally figures. This child is Angélique, the heroine of *Le Rêve*. After having been abandoned by her mother, and reared by *L'Administration des Enfants Assistés*, she finds herself, when she is nine years old, in picturesque destitution in the little city of Beaumont in Picardy. The rest of her life is pure

romance. The very names of the good man and his wife, Hubert and Hubertine who rescue her from death in the snow are redolent of the lays of the Trouvères. We see Angélique, now a beautiful girl, seated at her loom embroidering priestly vestments. She reads *Les Vies des Saints*, and *La Légende Dorée* of Jacques de Voragine. She talks to her princely lover from the balcony of her bed-chamber as Juliet talks to Romeo, while the moonlight floods the garden beneath. She visits the poor and suffering like an angel of mercy, and she dies, clinging to her husband's neck, as among the plaudits of the people she comes out of the cathedral after her marriage. It is a fascinating story, but Angélique and her lover, Hubert and Hubertine, priests and princes are all as unreal and fantastic as the shadowy characters that flit across the pages of a mediæval romance. Imagine such a *conte de fée* thrust into the midst of the horrors and tragedies of Zola's realistic novels! It is like finding a page of the *Golden Legend* bound up by mistake in some sordid *History of Crime*. *Humanum est errare*, and Zola, great artist as he is, has erred. No, one cannot accept the pure-minded, saintly Angélique as the daughter of the miserable old female pander, Sidonie Rougon.

Marthe, the youngest child of Pierre and Félicité Rougon, did not resemble either her father or mother, but she was remarkably like her grandmother, Adélaïde, or "*Tante Tide*," as the old woman was called at Plassans. Speaking of this resemblance, the neighbours would say of Marthe, "*Voici Tante Tide qui crache*." This likeness appeared to have jumped over one generation, for Pierre Rougon in no way resembled his mother.

In her youth Marthe suffered from severe headaches and attacks of giddiness. From some of the symptoms, which she herself relates, one comes to the conclusion that about her twentieth year she passed through a mild attack of melancholia, with the delusion that her skull had been opened and the brain removed.

She married her first cousin, François Mouret, of whom more anon. The pair lived at Marseilles for fifteen years, during which time they had three children. Having amassed a small fortune, Mouret and his wife returned to Plassans, where they settled down to a life of retirement and ease.

When Marthe was about forty years of age she began to

show signs of mental disorder. A certain school of psychiatry would, no doubt, consider that many of her symptoms were the manifestations of a repressed complex. She was in love with a priest, and her passion, concealed at first not only from its object, but even from herself, found expression in a mystical form of religion. Later on in the course of the disease she suffered from convulsions, and from hallucinations of sight, hearing, and touch, and finally she died of phthisis.

Let us now turn to the Macquart branch of the family.

Antoine, the elder of Adélaïde's illegitimate children, grew up a strong man, in whom the faults of both his parents early showed themselves. From his father he derived a love of vagabondage and drink, and a tendency to outbursts of brutal passion. These vices, which in the case of the father had been relieved by a sort of good-natured frankness, were made worse in that of the son by a cunning full of hypocrisy and cowardice. This modification of character was due, according to Zola, to the influence of the mother's diseased nervous system on her offspring. From Adélaïde, Antoine also inherited "the selfishness of a voluptuous woman, who will accept any bed of infamy, providing that she can lie at ease and sleep warmly."

The leading trait of the man's character was laziness. "His continual dream was to invent a fashion of living well without doing anything."

Drawn as a conscript in 1807, he served in the army until 1815, and ten years later, when he was thirty-six years of age, he married Joséphine Gavaudan, a hard-working woman of Plassans. Joséphine, who was six years younger than her husband, was strong and healthy, but unfortunately she was fond of drink. She worked hard all the week, and she drank so hard on Sunday that she was dead drunk by the evening. She loved work by instinct, and she seemed to love drink by instinct also.

At first Antoine and his wife got on fairly well together. The man even worked a little. Soon, however, quarrels began, and when they were both drunk Antoine beat his wife brutally, and she, being a strong woman, retaliated. It was not long before the man resumed his lazy habits. He spent his days loafing in public-houses, and allowed his wife to work for him and the family.

There were three children of this marriage: Lisa, born in 1827; Gervaise, in 1828; and Jean, in 1832.

Joséphine died of pneumonia in 1850, and in consequence of her death the home was broken up. After experiencing many vicissitudes of fortune, Antoine Macquart compelled his half-brother, Pierre Rougon, over whom his knowledge of certain shady antecedents of the family allowed him to exercise the power of blackmail, to buy him a small estate close to the asylum of Tulettes. He lived on his property for many years in comparative luxury, employing his leisure in a steady course of drinking. He died at the age of eighty-four years of spontaneous combustion. The sad event bore a great resemblance to the death of the late Mr. Krook of Chancery Lane, as related by Dickens in *Bleak House*, but Zola describes the tragedy with more detail.

Lisa, the eldest child of Antoine and Joséphine Macquart, was born about a year after the marriage of her parents, when they were living together in comparative peace and sobriety. She was a fine, healthy girl, and physically she resembled her mother, from whom she inherited something of her love of work. To her father she owed a desire for comfort and *bien-être*. As a child she would work all day long, if she knew that at the end she would be rewarded with a cake. In short, she was endowed with that appreciation of future pleasure and pain which we call prudence. When she was about seven years of age the postmistress of Plassans took a fancy to her, employed her first as a little servant, and afterwards adopted her. When the postmaster died, his widow went to live in Paris, taking Lisa with her. This life of comfort, which she was well able to appreciate, and the protection which it afforded from gross temptations, naturally affected the development of the girl's mind and body. It suppressed the vices, and strengthened the virtues, which she inherited from her ancestors.

In 1852 Lisa married a pork butcher, named Quenu, who had a large business near the Halles in Paris, and whose father was a peasant from Yvetot, in Normandy. Quenu took more after his father than his mother, who was a native of the *département* of Gard. Under the appearance of stupidity he concealed the astuteness of a Norman peasant, and was exceedingly fond of comfort and good living. Physically and mentally he was quite normal.

Lisa bore her husband one child, a girl named Pauline, born in 1852, who was strong and healthy in mind and body.

Pauline Quenu is the finest female character that Zola has placed upon his mimic stage.

Gervaise, Antoine Macquart's second child, was lame from birth. She was born after her parents had resumed their drunken habits. "*Conçue dans l'ivresse, sans doute pendant une de ces nuits honteuses où les époux s'assommaient, elle avait la cuisse droite déviée et amaigrie, étrange reproduction héréditaire des brutalités que sa mère avait eu à endurer dans une heure de lutte et de soulerie furieuse.*"

She was a puny child, and her mother gave her spirits with the idea of strengthening her. She grew up tall and slight, and, in spite of her delicacy, she was not without her share of good looks. Her father treated her brutally.

The girl took to bad habits. When she was not quite fourteen years old she became pregnant by a working tanner, named Lantier, who was only four years her senior. The next year she had another child, and three years later a third, all three children being by the same father.

Lantier was a typical Provençal, small, dark-complexioned, and good-looking. He was intelligent, but idle, and did not care who suffered so long as he was comfortable. He had a cynical disregard for the rights of others, and a marked ability in making them work for him.

After her mother's death Gervaise went to Paris with Lantier and two of her children, leaving the second child, Jacques, behind at Plassans. Soon after their arrival in the French capital Lantier deserted Gervaise. Want brought out the best in the woman's character. She inherited a love of hard work from her mother, and she had her own ideas of cleanliness and order. She found work in a laundry. Later she married a man named Coupeau, a plumber by trade, and who was steady and respectable. By this man Gervaise had one child, a girl named Anna.

A year or two after the child was born Coupeau fell from a roof, on which he was working, and broke his thigh. After the accident his character changed. He became lazy and took to drink. He may have inherited a tendency to alcoholism, for we are told that his father died from the result of an accident which happened to him when he was drunk.

Gradually Coupeau and his wife fell in the social scale. Gervaise returned to the drinking habits that she had abandoned

for years. Their home was broken up, and finally the man succumbed to an attack of *delirium tremens*, and a few years later the woman died in the greatest destitution.

Of Gervaise we may say that she inherited a love of drink from both her parents. From her mother, in addition, she inherited a love of industry and a pride in its results. This latter trait revealed itself especially when she had a happy home and a steady husband. Afterwards, misery and ill-treatment drove her back to drink.

She had four children. By Lantier she had three boys : Claude, born in 1842 ; Jacques, in 1844 : and Étienne, in 1846. By Coupeau she had one girl, Anna, born in 1852, when she was living a sober, hard-working life, and when she loved her husband, who at that time was also steady and respectable.

Claude Lantier, Gervaise's eldest son, showed signs of being an artist while he was quite a child. An old gentleman, who saw some of his early daubs, adopted him, and took him home to Plassans, where he had him educated at his own expense. When the old man died he left Claude a sum of money, the interest of which was enough for him to live upon. The young man returned to Paris to pursue his study of Art. He was recognised as a genius by his fellow students and others, but there was something lacking in his mental make-up. He never achieved success. One might almost say that his hands could not execute what his brain conceived. He married a handsome girl, Christine Hallequin, socially his superior, who was devoted to him, but who was not strong enough to help him conquer his defects. Claude Lantier's want of success as an artist preyed upon his unstable nervous system, and in the end he committed suicide.

In this case Zola touches upon a point of some interest. The old adage, *nullum ingenium sine misturâ dementiæ*, is utter nonsense. One might as well say that every healthy man is diseased, every strong man feeble. Real genius is normal ; it is lopsided genius which is abnormal. The lopsided genius, be he artist, musician, or writer, is the man who is only too likely to become insane. He is lacking in equilibrium. Unable or unwilling to recognise his defects, he attributes his want of success to the malevolence of others, and easily becomes the subject of a fixed delusion. Absolutely devoid of modesty,

which is an essential attribute of true genius, he is obsessed with his own vanity, and dies its victim.

Claude and Christine Lantier had one child, a boy, named Jacques-Louis, born in 1860, and who was said to have physically resembled his father. He was feeble in mind and body, and died of hydrocephalus in 1869.

Jacques Lantier, Gervaise's second son, had been left behind at Plassans in the care of his godmother when his father and mother went to Paris. He was intelligent, and, having followed the course of the *École des Arts et Métiers*, he became an engine-driver of the first class. Physically he resembled his mother. He was healthy, good-looking, and had remarkably small hands and feet.

Intelligent and healthy as Jacques Lantier was, he suffered from what Zola calls the *félure héréditaire*, which, in his case, took the form of sadism in its most hideous manifestation. The horrible impulse appears to have been periodic. When the desire seized him, "*il ne s'appartenait plus, il obéissait à ses muscles, à la bête enragée.*"

The novelist paints vividly the torture that the man suffered during his periods of mental health, dreading the moment when the terrible impulse would return and master him. One has been told by victims of epilepsy and dipsomania how they also dread the approach of their attacks. Once Jacques Lantier remained free from the disease for so long a time that he believed himself cured, and it is pathetic to read of the misery with which he recognised that after all his enemy had only left him for a season. The struggle of an otherwise healthy man with such a perversion, the depression which occurs if he be victorious, and the temporary peace which follows the yielding to the temptation and the accomplishment of the crime, are graphically depicted by the novelist.

Jacques Lantier always seemed more liable to an attack of his affliction after a drinking bout, and Zola is probably correct when he attributes the disease to the habits of chronic alcoholism, to which the patient's ancestors had been addicted for generations.

Étienne Lantier, Gervaise's third son, was brought up in comparative comfort by his mother during the first years of her married life with Coupeau. At first Étienne served an apprenticeship in some iron works in Paris. Then he became a mechanic in certain engine works at Lille, and afterwards he

found employment as a miner in the coal mines of French Flanders. He was physically strong and mentally intelligent, and resembled his mother rather more than his father.

In this character it appears to have been Zola's intention to present us with the study of a dipsomaniac. But in this he has failed. He tells us, indeed, that Étienne, having given way to drink, was dismissed from his situation at Lille for striking his employer in a fit of drunken fury. He also describes Étienne's fear of tasting alcohol on account of the effect it had upon him. But on several occasions the man drinks gin freely, and does not appear to have been very much the worse for it, and there is no evidence that he suffered from a periodic craving for drink. It is true that he committed murder, but he did so almost in self-defence, and was certainly not under the influence of alcohol at the time. Apparently Zola was so carried away by the contemplation of the moral debasement and physical misery of the miners' lives, which he paints so vividly in *Germinal*, the strongest of his novels, that he forgot to develop the character of the hero as he intended to do.

Anna, the youngest child of Gervaise, and the only one she had by Coupeau, was "Nana," the heroine of the notorious novel of that name. She was born when her mother was living a healthy life, and before her father had taken to drinking. As the result of the moral and material degradation into which her parents gradually fell, she was thrown early on the street. Her beauty, which she probably inherited from her great-grandmother, Adélaïde, was remarkable, and she became for a time the recognised queen of the *demi-monde*.

In the genealogical tree, which he has drawn up of the Rougon-Macquart family, Zola indicates that Anna was tainted with the alcoholism of her parents. But he has not worked this out in the novel. Indeed, until the woman was damaged by her vicious life, she appears to have been mentally and physically sound. Even in the midst of her debauchery she evinced traits of a better nature, and one may look upon her faults as due in a great measure to education—for there is an education of the street as well as of the schoolroom—and to environment.

Anna died of confluent smallpox in 1870. She had one child, Louis, or Louiset, by an unknown father. The boy was scrofulous, and died in infancy.

Jean Macquart, the youngest child of Antoine and Joséphine, was strong and healthy. He resembled his mother more than his father, but it was the peasant ancestry of the family which principally revealed itself in his character. He was not very intelligent, but he was well endowed with useful, though obstinate, common-sense.

He was at first a carpenter by trade. Having been called to the colours, he served through the Italian war, and fought at Solferino. Afterwards he became a farm labourer on the Beauce, where he married. After losing his wife under tragic circumstances, he rejoined the army at the outbreak of the Franco-Prussian War. He was present at the battle and the capitulation of Sedan, and he fought during the days of the Commune on the side of the Versaillais. After the war was over Jean Macquart returned to the neighbourhood of Plassans, where he married Mélanie Vial, a healthy, intelligent girl, who was the only daughter of a peasant in easy circumstances.

In Jean Macquart, Zola has drawn one of the best of the human race—an honest countryman, brave, patient, and resourceful. When we last hear of him, he and his wife are leading a hard-working, comfortable life, with a large family of healthy children growing up around them.

We have now to go back almost to the root of the Rougon-Macquart family tree, and to consider the case of Ursule Macquart, the younger of Adélaïde's two illegitimate children.

Ursule resembled her mother mentally and physically. "Born the second" of this branch of the family, "at the hour when the tenderness of Adélaïde dominated the love, already calm, of Macquart, Ursule seemed to have received with her sex the more profound imprint of the temperament of her mother." As a girl she was fanciful, passionate, and much given to day-dreaming. Sometimes she suffered from prolonged periods of sadness, at other times she was unreasonably gay, and surprised the neighbours with outbursts of nervous laughter. She inherited her mother's beauty, but not her bodily strength. At the age of nineteen years she married a journeyman hatter named Mouret. The pair went to live at Marseilles, where they had three children—François, born in 1817, Hélène, in 1824, and Silvère, in 1834.

Ursule died of phthisis in 1839. Her husband, Mouret, was

broken-hearted at her death. He brooded over his bereavement for a year, spending all the money he had saved, and neglecting his work and family. One day he hung himself in the wardrobe where his late wife's clothes were still preserved. He seems to have been one of those amiable, uxorious men, in whom the emotions dominate the other faculties of the mind. They are not of much use in the world. If they are subjected to mental strain, they frequently break down, and become the victims of melancholia. Should they commit suicide, they are extremely likely to murder their loved ones before taking their own lives.

François Mouret, the eldest child of Ursule, not only physically resembled his mother, but also his grandmother to a remarkable degree. After his father's death he went to Plassans, and was employed as a clerk by his uncle, Pierre Rougon. He married, as has been said above, his first cousin, Marthe, whose extraordinary likeness to their grandmother, Adélaïde, has also been previously pointed out.

After his marriage, François Mouret went back to Marseilles, where in fifteen years he amassed a small fortune in the olive oil trade. He and Marthe had three children: Octave, born in 1840; Serge, in 1841; and Désirée, in 1844.

Satisfied with the money he had saved, François Mouret sold his business and returned to Plassans, where he bought a house and garden and settled down to the life of a *petit rentier*.

Until he arrived at middle age this man appears to have been sane enough. But the hereditary weak brain was there, and it gave way to the stress of jealousy caused by his wife falling under the influence of Abbé Faujas. He became more and more irritable, the carefulness of the middle-class householder developed into avarice, and later he became too weak-minded even to be avaricious. He, who had been very fond of his fellows, gave up society and sat moping alone. His love for his wife and children, for he had inherited the affectionate disposition of his father, showed itself only by fits and starts, except in the case of his imbecile daughter, Désirée, whom he loved to the last.

Finally, he was sent to the asylum at Tulettes, though it is questionable whether he was certifiable at the time of his internment. But he undoubtedly became insane afterwards. Some time later, by the connivance of one of the attendants, he

escaped from the asylum, and returned by night to his own house in Plassans. There he was seized with a sudden impulse of vengeance. He set fire to the building and perished in the flames together with the man of whom he was jealous.

Octave Mouret, the eldest child of François and Marthe, was born in the first year of his parents' married life, when they, and especially his father, were at their best physically and mentally. He was healthy in mind and body. He inherited his father's business capacity, and a great deal also of his maternal grandmother's cleverness. After sowing his wild oats at Marseilles, Octave went to Paris, where he succeeded in developing a small drapery business into a colossal emporium. He married a strong and healthy girl, Denise Baudu, who came from Valognes in Normandy, and who was as intelligent and chaste as she was beautiful. She is Zola's most charming heroine.

Octave Mouret was exposed, and exposed himself, to almost every kind of stress, but he showed no sign of the family mental taint. When we last hear of him he is living the life of a successful tradesman. His wife has borne him two children, one of whom died in infancy, but the other is strong and well.

Serge Mouret, the second child of François and Marthe, resembled his mother mentally and physically. In his boyhood he was amiable and studious, and when he became a man he entered the priesthood. At puberty a passionate enthusiasm for religion awoke in him, which increased during the period of adolescence, and culminated, when he was about twenty-four years of age, in an attack of brain fever accompanied by delirium and hallucinations.

Serge Mouret's case bears considerable resemblance to that of his mother. In both the mental crisis occurred at periods of life recognised as being those of exceptional stress; in the son's case at puberty, in the mother's at the climacteric. In both, religion appeared to be the outward expression of an inward eroticism.

From the symptoms described by Zola—though it is somewhat difficult to follow him at this point, for he himself becomes delirious, the delirium taking the form of the most marvellous passages of colour writing that ever flowed from a writer's pen

LXII.

35

—one concludes that the brain fever from which the young man suffered was the condition described by French alienists as "*Confusion mentale pseudo-meningitique*."

Désirée, the youngest child of François and Marthe Mouret, was an imbecile.

Hélène, the second child of Ursule Mouret, *née* Macquart, showed no sign of insanity. She grew up a fine, strong woman. In 1841 she married Charles Grandjean, a clerk in a business house at Marseilles. This marriage with a poor working hatter's daughter was disapproved of by Grandjean's family, so that the first years of the married life of the young couple were passed in comparative poverty. Afterwards Charles inherited a fortune, and he and his wife removed to Paris to enjoy it. Soon after their arrival in the French capital the husband died of acute bronchitis. He was passionately fond of his wife, but on her part the marriage was one of convenience.

They had only one child, Jeanne, born in 1841. She was afflicted with epilepsy, and died of tuberculosis at the age of fourteen. She was a frail but beautiful child, and was said to bear a remarkable likeness to her great-grandmother, Adélaïde.

Silvère, the youngest child of Ursule Mouret, was very delicate as an infant. But after his mother's death he went to live a wild, outdoor life with his grandmother, Adélaïde, in the country around Plassans, and he grew up a strong youth. He was exceedingly intelligent, and spent much of his time reading. But unfortunately his education was too poor for him to understand all that he read, and many of the ideas that he thus acquired were warped and distorted.

In his case, as in that of Serge Mouret's, the enthusiasm of adolescence passed beyond the border line of sanity. In the case of Serge it took the form of mystic religion; in that of Silvère of an idealised republicanism.

"*Ah! que tu es bien le petit-fils de ta grandmère! hystérie ou enthousiasme, folie honteuse ou folie sublime. Toujours ces diables de nerfs!*" exclaimed his uncle, Dr. Pascal Rougon, as he listened to one of Silvère's outbursts of fervent but visionary republicanism.

After having been the hero of one of Zola's most charming idylls, the poor lad died a martyr for his beloved republic.

Such is the family history which Zola lays before us, and,

allowing for social, historic, and local differences, and, of course, for the exaggerations, the high colouring, if you will, required by a novelist's art, it is not very different from one which might be compiled from the note-book of a practitioner of medicine of the present day.

Ethnological considerations creep into every study of mankind, and although they did not probably enter into the original conception of Zola's scheme, yet they reveal themselves everywhere in his history of the Rougon-Macquart family. Something of this is due to the region in which he has placed the cradle of the race, a region where even now, after centuries of fusion, the types of widely different peoples can be recognised. And, in its turn, this choice of locality was the result of accident. Although he was born in Paris, the novelist spent the greater part of his youth in the South of France, where his father, an Italian engineer, was employed in professional work. Zola knew Provence thoroughly. He was acquainted with all the ruined monuments and all the old-fashioned streets of its ancient cities, and he had studied its people in every rank of society. It was quite natural, therefore, that he should make use of this local knowledge in his series of novels.

When we think of Provence we think of troubadours and Courts of Love, of Laura and Petrarch, and of the fountain of Vaucluse; or, if we are more modern in our ideas, of Frédéric Mistral and his great poems *Miréio* and *Calendal*. But it is not all poetry and passion in this beautiful corner of France. There is another side to the Provençal character, and that is the commercial.

From earliest historic times the trade of the Mediterranean peoples penetrated the uncivilised regions of western Europe by the Rhône valley. The ubiquitous Phœnicians came and went, but the Greeks from Phœcea left more permanent traces on the land. They founded the great trading city of Massilia (Marseilles). And, later on, fresh colonists from Greece built Antipolis (Antibes), Nicea (Nice), Agatha (Agde), and other towns on the southern coast of France. The infusion of Greek blood into the native Ligurian and Celtic races must have been considerable, and may be recognised even at the present day. The Arlésiennes are said to owe their beauty to their Greek ancestors.

In the days of the Romans, Provence (Nostra Provincia)

was still the trading centre of the west. Cæsar tells us : "*Fortissimi sunt Belgæ, propterea quod a cultu atque humanitate Provinciæ longissime absunt, minimeque ad eos mercatores sæpe commeant, atque ea, quæ ad effeminandos pertinent, important.*"

Lastly, the Visigoths and Saracens passed by, leaving, no doubt, traces of their passage, but doing little to modify the trading instincts handed down to the Provençals from the days of the early colonists from Greece.

In Félicité Puech, the scheming wife of Pierre Rougon, Zola has, consciously or unconsciously, painted the representative of a race deeply imbued for centuries with commercial instincts ; for intrigue, for which alone the woman seemed to live, is the soul of trade. The influence of her character reveals itself in several of her descendants, particularly in her sons, Eugène and Aristide, and her daughter, Sidonie, and in her grandson, Octave Mouret, modifying, and to a certain extent dominating, the characteristics of the other stems grafted on this family tree.

In Rougon, the husband of Adélaïde and the father of Pierre Rougon, the novelist has drawn the representative of a widely different race. He was a short, stout, square-headed boor, and he came from the valleys of the lower Alps, where to-day we find the descendants of the short, brachycephalic Ligurians. Eugène Rougon, the statesman, is a skilfully drawn portrait of a man resulting from the cross-breeding of the brutal Ligurian with the wily Provençal.

It would be possible, if space allowed, to point out the influence exercised by the Norman peasants and certain of the mixed peoples of Paris, with whom members of the Rougon-Macquart family become allied, on its mental and physical development.

In studying heredity as a cause of insanity, the question arises whether the paternal or the maternal influence is most potent in transmitting mental disease to the offspring. Authorities differ. Esquirol considered that the father's condition was the most important, and Baillarger agrees with him, but Orchansky and others hold the opposite view. The family histories of mental cases which I have been able to investigate are, of course, too few to be of much value, but, as far as they go, they point distinctly to the conclusion that insanity is generally handed down from the maternal side of the house,

and also—and this is an important point—that the mother is more likely to transmit the taint to the child that she nurses than to the one for whom she does not perform this duty, even when the disease has not revealed itself in her, the mother's, generation.

There is an analogous series of facts which supports the view of the potency of the maternal factor. If a man of genius has children, it is rare for them to be talented. But such a man has generally had a mother who has been distinguished for her sound common-sense, and sometimes has been remarkable for her intelligence. Even when it is not a question of genius, but only of ordinary success in life, it is a matter of common knowledge that men, who have attained high positions in the professions or in commercial pursuits, have very second-rate sons in the majority of cases. It is, however, rare to find a man, who has been able to rise in the world by his own efforts, who has not had a level-headed mother.

If, then, the sound brain be generally handed down by the mother to the offspring, may not the unsound brain be so also? Or to put it in another and more forcible way, is it not the individuality of the nervous system of the mother rather than that of the father which is impressed upon the offspring?

Zola, in the Rougon-Macquart family history, illustrates this theory, both with reference to the transmission of mental superiority and of insanity. As to the former, I have already pointed out the influence of the clever mind of Félicité on the characters of her descendants, while it will be remembered that Pierre Rougon was of very average intelligence. Joséphine Gavaudan is a further illustration, for she transmits her love of hard work to her three children, while their father, Antoine Macquart, was an exceedingly lazy man. With regard to insanity, the evil influence of Adélaïde's mental disease is shown throughout the whole family history, although her husband, Rougon, was of sound mind. Marthe Mouret hands down her unstable brain to two of her children, though in her case the mischief is doubled by her marriage with her first cousin. So that here the potency of the paternal and maternal factor appears to be equal. Though it may be observed that the type of mental disease from which one of the children, Serge, suffered, was the same as his mother's. The case of Gervaise is still more disastrous, for her three children by

Lantier were more or less insane. Whereas Lantier himself showed no sign of mental aberration.

There is another point, upon which Zola lays considerable stress, and that is the position of the child in the sequence of the family. The healthier the parents are at the time of the procreation of the child, the more likely is it to be healthy, *celui va sans dire*. The younger the parents are, after they have arrived at maturity, the more likely they are to have healthy offspring, because they have not yet been exposed to the prolonged strain and fatigue of life. And consequently the older children of a family are more likely to be healthy in mind and body than the younger. In the fictitious pedigree before us we see that Pierre Rougon is healthier than his half-brother, Antoine, and that Antoine is decidedly healthier than his sister, Ursule. In Pierre Rougon's own family this is still clearer. Even in the case of François and Marthe Mouret, Octave, the eldest child, is normal, while the two younger ones are mentally diseased. This is, I think, in accordance with general experience. In only one instance have I met with the case of a family in which the eldest child was insane and all the younger children mentally sound. And this case is explained by the fact that the birth of the eldest child was a difficult instrumental one, and that consequently the congenital imbecility from which it suffered may have been due to violence.

But when the parents are too young things are different, and the older children are likely to be more feeble both in mind and body than those who come after. In the case of Gervaise, we are told that she had three children by Lantier, who was only four years her senior, before she was eighteen years old. Even allowing for the early development of a southern race, this is very young. In a northern race the matter would be still more serious. And it may be observed that Gervaise's two older children, Claude and Jacques, were mentally more unstable than he youngest, Étienne.

The part played by alcohol in the development of mental disease, and the tendency of alcoholism to become hereditary, is fully worked out in this series of stories. We see that Adélaïde, at the time of her marriage with Rougon, who appears to have been a temperate man, was not addicted to drinking to excess. And consequently there is no evidence of alcoholism in the Rougon branch of the family. But after-

wards, when Adélaïde cohabited with the drunkard, Macquart, she gave way to drink, and the result is evident throughout the Macquart branch of the family. Antoine, the elder of Adélaïde's illegitimate children, was a drunkard, and although Ursule, the younger child, does not appear to have developed any great love for drink, yet she was feeble in body, and exhibited in her own case and transmitted to her offspring the diseased mentality which she inherited from her mother and grandfather. For alcoholism in the parent, even when it is not handed down as such, seems to facilitate the transmission to the offspring of taints which might otherwise have lain dormant, or have been suppressed altogether.

Antoine Macquart, unfortunately, married a woman who was addicted to drinking to excess. Their daughter, Gervaise, was a drunkard when a child and a young woman, and though in middle life, and under favourable circumstances, she gave up her evil habit, yet she returned to it under the strain of misery, and at last it killed her. Three of her children were insane. In Étienne the insanity took an alcoholic form. In the case of Jacques it took that of criminal impulse. In this latter case Zola has indicated what one so frequently observes in studying the history of a morbid family, namely, how closely alcoholism is linked with troubles of the will.

The influence of environment in the development of character reveals itself constantly throughout this long series of novels. But Zola is true to Nature. He recognises that environment can only modify ; it cannot change the natural temperament or constitution of the mind of the individual. Cultivation of flowers increases their beauty ; cultivation of weeds adds to the rankness of their growth. In like manner, favourable circumstances bring out all that is best in some people, and all that is worst in others. Lisa, the daughter of the scoundrel Antoine Macquart, is taken from miserable surroundings at the age of seven years, and placed in a good home, and is well fed. She grows up a strong woman, marries a normal individual, and gives birth to a healthy child. Even her sister, Gervaise, when she lives in comfort, finds the best of her nature assert itself. But in the cases of Aristide Rougon and his son Maxime, success and affluence lead to the development of all that is bad in their characters.

The effect of stress on an unstable mind is illustrated by the

cases of François Mouret and his wife Marthe. In the case of the latter, it appears probable that even had she not fallen under the influence of Abbé Faujas, she would have developed some form of erotic eccentricity at the oncome of the climacteric. But in that of François himself, it is possible that had he not been exposed to the strain of jealousy he would not have become insane. No doubt senility would have come on early, and, had he lived long enough, he might have sunk into dementia, but he would have been spared the attack of mania.

In spite of beautiful descriptions of scenery, of a realism which clothes with flesh the phantoms of romance, and a keen penetration into the motives of men and women, Émile Zola's books would be but sorry reading if it were not for the hope of the ultimate regeneration of the race, which vibrates through every story. The novelist shows how self-destruction, alcoholism, and disease, especially phthisis, weed out the unfit from a family, but he also points out that in those that survive there is always the possibility of improvement. The germs of good are even more tenacious of life than those of evil, and when they are favoured by circumstance, such as the temporary health of a parent, or the infusion of healthier blood, they are ready to struggle on towards that which is better.

Zola was not a pessimist. Could anything be more hopeless than the future of a family sprung from such a degenerate as Adélaïde? Yet among the crowd of murderers, suicides, visionaries, sexual perverts, and people rotten with consumption, the novelist shows us gentle scientists like Dr. Pascal Rougon, unselfish, level-headed women like Pauline Quenu, and honest citizens like Jean Macquart.

Catatonia as a Type of Mental Reaction.⁽¹⁾ By DAVID K. HENDERSON, M.D., Resident Physician, Royal Mental Hospital, Gartnavel, Glasgow.

IN 1896 Kraepelin first introduced and defined his conception of the manic-depressive psychoses and dementia præcox. It has been fairly generally admitted that his was a brilliant piece of work, but since that time he has been led, in certain more or less minor respects, to modify his views. Briefly put, Kraepelin described in a very thorough and detailed way the

symptomatology of these disorders, and then, according as the case was one of manic-depressive insanity or dementia præcox, the prognosis was held to be either good or bad respectively. Such a simple method of differentiation and of deciding on the prognosis seemed too good to be true, and although it must be admitted that in the main it holds good, yet in certain fundamental respects it fails. We all know that certain types of the manic-depressive psychosis do not get well, and on the other hand we all probably have seen cases which, symptomatologically, were cases of dementia præcox that recovered. In no group of cases has this been more clearly seen than in catatonia.

The term catatonia was first employed by Kahlbaum to denote a group of alternating cases, a good many of whom tended to get well. When Kraepelin came to use the term he modified and enlarged its meaning, and included it as a subgroup under the more general term dementia præcox. Kraepelin of course recognised that catatonic states occurred in various other disorders, such as epilepsy, toxic-exhaustive states, brain tumour, general paralysis, etc., but he held that in these conditions the catatonic symptoms were essentially of a transitory nature, and then he went on to make the sweeping statement that all catatonias not organic in nature were indicative of a deteriorating process. In later years Kraepelin has considerably modified the above generalisation, and now admits that about 13 *per cent.* of cases of catatonia recover, but still he holds that these recoveries should be looked upon more as remissions than as absolute recoveries. Wilmans (quoted by Kirby) in 1907 reviewed Kraepelin's Heidelberg cases, and found that a good many of the cases diagnosed by Kraepelin as catatonia had recovered, and stated that catatonic symptoms as evidence of a deteriorating process had been greatly over-rated. In 1913 Kirby, in a paper on "Catatonia and its Relation to Manic-depressive Insanity," reported four cases, all of whom had shown the characteristic catatonic state, but subsequently developed quite typical manic features and recovered. Devine has also reported two cases who have passed through catatonic periods, and who from time to time have shown a fairly frank excitement. Devine apparently believes that his cases are more allied to manic-depressive states than to dementia præcox, but in my opinion his cases are very much less conclusive than those reported by Kirby.

Enough has been said to show that a rather anomalous state of affairs exists, and on account of it there have been some who have not hesitated to assert that we would have done quite as well if we had continued to employ the terms mania, melancholia, adolescent insanity, stupor, and the rest, and who have further asserted that the term dementia præcox, carrying with it as it does a poor prognosis, was apt to foster a pessimistic spirit. It would be far outside the scope of this paper to enter into a discussion of the classification of mental disorders, but it may be maintained that Kraepelin by his conception infused new life into psychiatry, and that his analytical genius brought together into the groups of manic-depressive psychoses and dementia præcox cases which, *on the whole*, showed very distinctive symptomatic pictures, which up to a certain point could be used prognostically. Where Kraepelin failed was in not allowing for the personality in whom the psychosis developed, and in not giving sufficient consideration to the genesis of the disorder.

Adolf Meyer was one of the first, if not the first, to recognise this defect, and he accordingly formulated his conception of reaction-types, whereby a psychosis was looked upon in terms of situation, reaction, and final adjustment. For instance, suppose a person to be suffering from some form of bacterial infection (the situation), nature reacts by developing anti-bodies to counteract the injurious or poisonous effects of the toxins, and the final result depends either on an overcoming of the toxins, or absolute failure, or else a compromise, whereby the organ is injured but still is able to function. So it is with the mind; we have to train ourselves to meet the different situations that arise in our lives in healthy, aggressive ways, and should we fail we have to inquire into the why and wherefore of our failure, and have to devise means to safeguard ourselves in the future. Let me give you a concrete example: A young married woman, æt. 33, following the birth of a baby, was found to be quite blind, the result of a retinitis. On attempting to take up her household duties she found that she was quite unable to cope with the situation, became depressed, and made several determined attempts to commit suicide. In consequence she was sent to the hospital for treatment, where, by a gradual building up of her interests, she was finally able to make a satisfactory adjustment, and eventually was discharged with a

very much better sense of her responsibilities. Such a case shows how a *healthy-minded woman* may, under certain distressing circumstances, react to her difficulties in a faulty way, but it also shows how, with a certain amount of help, that person is again able to regain her balance.

As has been pointed out by Meyer, however, the individual who tends to develop dementia præcox is not a well-balanced person, but on the other hand is usually one who throughout life has been in the habit of meeting his difficulties in an inadequate way, "and often enough has given evidence of being habitually dreamy, dependent in his adjustment to the situations of the world rather on shirking than on an active aggressive management, scattered and distracted either in all the spheres of habits, or at least in some of the essential domains of adjustment which must depend more or less on instinct or habit."

Following Meyer's lead, Hoch made an analysis of the personality of a large series of cases of dementia præcox, and found that certain traits, such as seclusiveness, shyness, sensitiveness, lack of adaptability, etc., occurred with great regularity, and constituted what he aptly termed the shut-in personality. Such a type of personality was present in about 66 *per cent.* of his cases, and in only 8 *per cent.* did he find a normal personality. In manic-depressive cases, on the other hand, he found that we have usually to do with individuals who are subject to swings in mood, who are either vivacious, over-active, enthusiastic, easily excited, or else are subject to blue spells, worry over trifles, borrow trouble, blame themselves unduly, etc.

The point, then, which I want to emphasise is that these studies of Meyer and Hoch seem to clearly show that it is not anyone who can develop dementia præcox or manic-depressive insanity, but that the psychosis is essentially determined by the mental characteristics of the individual.

I submit that if we approach our cases in this way we will soon get away from cut-and-dry formal diagnostic methods, and, on the other hand, will come to study our cases as individual problems, to be treated on their merits in relation to the whole life-history of the individual.

To illustrate some of the above points still further, I wish in the first place to discuss a case of catatonia analagous to those reported by Kirby, and then in contrast several cases of catatonia

will be briefly discussed, all of whom, despite certain defects in their mental make-up, have been gradually able to readjust themselves, and have made a good recovery, even although it may be only a transitory one.

(1) A young man, a student, æt. 20, was admitted to the Psychiatric Clinic in a stuporous, terror-stricken condition, beads of perspiration stood on his forehead and face, his shirt and underclothes were soaked in perspiration, and his pupils were widely dilated. His lips and fingers were cold, clammy, and cyanosed. He had to be assisted to undress, and when put to bed lay stiffly stretched out, and paid not the slightest attention to anyone or anything around him. For the most part it was quite impossible to get him to answer any questions, but on one occasion, when asked his name, he gave instead the name of his father's chauffeur, and on another occasion mentioned the name of the hospital. He did not respond to painful stimuli, and had to be attended to in every way. During his residence in the hospital he maintained a mute, resistive attitude, could not be roused to take any interest in anything, and frequently wet and soiled himself. Once he wrote a word or two, such as "going to be shot," but he never could be got to reply relevantly. At another time he apparently thought that he was on a train, and motioned to the nurse to be quiet lest she would waken the person in the next berth. He was removed to another hospital, where for many weeks he remained in the condition described above, and then gradually made a good recovery, but still later became somewhat hypo-manic.

On studying the life-history of the patient we find that his mother and a maternal aunt had been mentally affected. The patient himself had been a healthy child, had developed normally, and in disposition had been open, jolly, and frank. He was a general favourite, a splendid athlete, but despite his physical prowess he had been reckoned modest and well-balanced. Intellectually he had in everything, except in mathematics, in which he was backward, been up to the average.

Six months previous to his admission he had taken up some office-work, but soon he began to behave in an elated, excited way, insisted on dancing the tango with the lady typist, and generally so disorganised the office staff that at the end of three weeks he was discharged. During the next few months he continued in a highly excitable, elated, restless, over-talkative

state. A fortnight previous to admission he became depressed and downhearted, would not read, refused to take an interest in social affairs, said that he could not think, that he was going crazy, and in addition expressed some vague ideas of persecution, saying that one of the maids in the house was a detective, and that his father had better get rid of her.

To sum the case up, we may say that here we had a perfectly characteristic catatonic stupor, preceded and followed by definite manic-depressive symptoms. According to Kraepelinian teaching we would have been justified from the symptomatic picture in looking upon the case as one of dementia præcox with a very grave prognosis. When, however, we come to consider the type of personality in whom the psychosis developed, and the evolution of the disorder, we immediately come upon features which show the close relationship of such a case with the manic-depressive psychoses, and warn us that the prognosis may be not nearly so bad as the catatonic state might lead us to think. It is just in such a case where catatonic and manic-depressive phases are present that Kirby believes that the manic-depressive symptoms are of greater prognostic significance.

The cases which I am now going to discuss are much more closely allied to the catatonias seen in cases of dementia præcox.

(2) A single woman, æt. 45, on admission was in a dull, stuporous, resistive, mute condition. Her facial expression was one of grim, determined antagonism, and she strongly opposed any attempt to help her in any way. She lay in bed with her arms pressed firmly against her chest, her hands were kept tightly clenched, but she kept constantly flexing and extending her legs so that the skin over her heels and knees had become abraded. On account of her refusal of food she had to be tube-fed; she frequently wet and soiled herself.

Ten days after admission she was noted as showing well-marked *flexibilitas cerea* and catalepsy, showed no reaction to painful stimuli, and still did not respond to questions; she looked dull, her tongue was thickly coated, and her breath was foul. About this time, however, as if in response to auditory hallucinations, she started to make a remark or two, and would say such things as: "Oh, Henry, Henry, don't bring them in here," or "Every man has a right—it was not the baby—why,

that man is crazy, I'll have him sued." She continued to be tube-fed, at times would steal food from the other patients which she would devour in a ravenous way, but always refused to eat anything from her own tray. On one occasion, about five weeks after her admission, she suddenly behaved in an extraordinary way ; she smirked, gesticulated, shrugged her shoulders affectedly, and reminded one of a young girl trying to play the part of a grand lady ; these actions were repeated over and over again. During the next few weeks she exposed herself in a shameless, unconcerned way, chewed thread and hair, and made many violent, impulsive, fantastic attempts to commit suicide, *e.g.*, by standing on her head and trying to screw her neck, by trying to smother herself in the bedclothes, by throwing herself from her bed, etc. Occasionally she would get out of bed and walk round and round the ward in a dull, blank way, knocking against anyone or anything that happened to get in her way.

Then, quite suddenly, seven weeks after admission, one day when visited by her mother she responded to a question, and began to talk rationally. Following this she gradually got clearer and better, and finally started to occupy and interest herself in a healthy, natural way.

Her history showed that when *æt.* 29 she had had a previous attack of mental disorder, similar in character to the present one, which had persisted for a period of five months. The present attack had been of about three weeks' duration. At first she was quiet and thoughtful, studied her Bible constantly, and then a few days previous to admission she became very agitated, paced up and down her room, and when asked what the matter was replied : " It is because of my sinful nature." It was following this that she lapsed into a catatonic state, and had to be brought to the hospital for treatment.

A maternal grandmother and a maternal uncle had been mentally affected. The patient herself had spent a healthy childhood, had developed normally, but apparently had been brought up in a narrow, sanctimonious atmosphere, as her mother with pride asserted that the patient had never been allowed to associate with ordinary people, that she was allowed to mix only with girls of the highest moral standing, and that she had always been most closely guarded against knowing anything pertaining to her instinctive life. She had been an

exceptionally conscientious, secretive, obstinate, prim girl, who never had made many friends, had never cared for games, social gatherings, etc., but had always occupied her mind with the serious, religious side of life.

Following this patient's return to her normal condition, several attempts were made to get her to review the psychosis so as to try to give her a better realisation and understanding of her disorder, but at all times the patient was exceedingly averse to a discussion of her case.

Although she was discharged as recovered the reservation was made that she had very poor insight into her condition. However, a letter received from her mother one year after her discharge in part said : " I would say that she is, and has been, perfectly well ever since leaving the hospital."

Here, then, we had to do with an individual whose instinctive life had been almost entirely suppressed, who on the surface was prim, secretive, obstinate, and shut-in, and who, in response to certain difficulties, showed her poor balance by reacting to the situation with an acute catatonia, characterised both by stupor and impulsive excitement. In contrast with this surface picture in her psychosis repressed trends, as evidenced by her shameless erotic conduct and the expression of such remarks as " It is because of my sinful nature," show themselves, and indicate clearly enough that underneath the surface a certain disharmony must have existed. It seems reasonable to suppose that just such a conflict, occurring in a person who never had been able to meet her difficulties in a healthy way, could be responsible for the psychosis.

(3) A young man, æt. 31, a minister, on admission was in a dull, mute state, kept his eyes tightly closed, and had to be led into the ward. He accepted everything done for him quietly and without resistance. When put to bed he lay flat on his back with his head thrown back, his eyes tightly closed, and his mouth wide open. He refused to answer any questions, had to be raised when necessary, had to be spoon-fed, and did not react to painful stimuli. He did not show any catalepsy ; occasionally, in response to some joking remark, he would smile, but he did not seem to take any interest in anything going on around him. For five weeks the above condition remained entirely unchanged, and then one day he suddenly seemed to wake up, and said : " My mind is all right." A few

days later he entered into a discussion of his case, and stated that during the whole period of his stupor his mind had been quite clear.

The patient had come from a healthy stock, had developed normally, and at the age of 21 years had taken his degree of Master of Arts at Glasgow University. In disposition he was thoughtful, quiet, industrious, one who shunned company, and who, from his earliest years, had been religiously inclined ; one of his teachers had called him "a sphinx." In 1906, after attending some revival meetings, he decided that it was his duty to go out into the world and "preach Christ," and make converts. Two years later he emigrated to Canada, and then gradually preached his way down through the States of New York, New Jersey, and Pennsylvania, until he reached Maryland. In July, 1913, while on a holiday, he started to review his year's work, and felt discouraged at the poor results attained. Gradually he became introspective, blamed himself for his inefficiency, and, as he saw the great gulf that existed between his ideals and the actual results achieved, he felt that his only hope lay in prayer. He told, too, of a conflict which for long had existed between his human and divine nature, and how it was only with difficulty that he had forced himself to believe that the secret of Christian growth was the subjection of man's desires.

He explained how, during his stupor, he had attempted to work out how he might become more efficient, how he might better reach souls, how he could put something into man to make him live up to the example and teachings of the Master.

A letter received from him one year after his discharge stated that he was in excellent health, and that he was actively engaged in his work in the north of Ireland.

In this case, again, we see how a man with the shut-in type of make-up, instead of meeting his difficulties in a healthy, aggressive way, tended to brood over them, and eventually showed an abnormal type of reaction by relapsing into a catatonic state.

Gradually, however, his resistance was built up, he was again able to readjust himself to the situation, although he left one with the feeling that he had very little real insight into the actual nature of his difficulties.

(4) A single woman, æt. 42, on the night previous to her

admission to the Glasgow Royal Mental Hospital had attended a religious meeting, the special topic under discussion being the Millennium. On returning home she seemed rather excited, but her conduct did not give rise to any special comment. The following morning when called she did not respond, her room door was found to be locked, and access to her room had to be gained through the window. She was seen to be sitting up in bed in a trance-like state with her eyes tightly closed. She adopted peculiar attitudes, sang snatches of hymns, refused food, and for the most part refused to answer any questions. When asked her name she replied by saying "Jesus," and repeated that word over and over again.

On admission she was in a state of stupor, lay with her eyes closed, would not speak, and did not react to painful stimuli. She showed a well-marked state of *flexibilitas cerea* and *catalepsy*, and gave no indication of appreciating anything going on around her. This stuporous state was punctuated from time to time by sudden impulsive acts, during which she was destructive and homicidal, and had to be given hyoscine. Frequently she tried to injure herself by throwing herself out of bed, by banging her head, and then at other times she screamed out loudly, grimaced, was dirty in her habits, and had to be tube-fed.

During the course of a few weeks she began to interest herself in others, was most kindly, and most helpful in very many ways.

This patient since the age of 21 years had had six previous attacks of mental disorder, each of which had been acute in onset and had been characterised by a state of stupor with impulsive self-destructive, and frequently very marked erotic tendencies. An interval of eight years had elapsed between the present attack and the immediately preceding one. Her history showed that a maternal aunt had had an attack of mental disorder from which she had recovered; a sister had died from hydrocephalus. The patient had been a nervous child whose mind had always been more or less filled with religious questionings, constantly wondering whether she was a Christian and really belonged to Christ. Throughout her life she interested herself almost entirely in sociological and religious work, and, as she expressed it: "At the age of twenty years I accepted salvation in Christ, and since that time I have been at rest in God." All her life, however, she had been extremely sensitive, had been dependent for her comfort on the opinion

held of her, had no interest in the lighter side of life, had never been quite able to meet her difficulties frankly, but had always taken refuge in the Divine.

When any attempt was made to review her psychosis with her she adopted the attitude that her attacks were due essentially to a dispensation of Providence, and that therefore it was not meet for her to discuss them. Even after she had regained her normal condition she did not bring up the question of her discharge, apparently rationalising her stay by believing that it was God's will.

Such a case speaks so plainly for itself that it is hardly necessary for me to emphasise it. So far as the symptomatic picture goes the case is a typical one of catatonia, but the important fact is that here we are dealing with an individual who never had really tried to know herself, but who ever since her earliest days had been in the habit of justifying everything by taking refuge in simple religious beliefs. It seems quite clear from her self-destructive and erotic tendencies cropping out in her psychosis that this patient, underneath the surface, had very much the same conflicts to deal with as any of the rest of us. Her beliefs, however, were sufficiently strong to enable her, after a period of rest and building up, to adjust her balance. No doubt if not exposed to any special strain that balance may be maintained for a considerable period of time, but the probability is that she will be subject to subsequent attacks.

(5) A young woman, æt. 27, was brought to the Psychiatric Clinic with a history of having been in a mute, stuporous state for 17 months, during which time she had twice, impulsively, tried to commit suicide; the above state had been preceded by the expression of vague persecutory ideas. On admission she was in a dull, stuporous, mute state, had an immobile expression, and except for an occasional rather forlorn smile, could not be made to respond in any way. She showed a condition of *flexibilitas cerea* and *cataplexy*, she did not react to painful stimuli anywhere over her body, and when commanded she readily protruded her tongue to be pricked. She did not take any particular interest in her surroundings, but seemed to understand what was said to her, readily obeyed commands, and was cleanly in her personal habits. Physically she was undernourished, but there was no disease of her organs.

Following her admission she continued in the mute, rather dull state described above, but gradually was induced to take her food well, and to interest herself in various forms of games and occupation. She was also given a series of injections of nucleic acid, which seemed to have a certain stimulating and beneficial effect. Gradually her condition cleared up more and more, she became interested, talkative and cheerful, and eventually made a most excellent recovery.

This patient's father and mother had been first cousins ; a younger sister, probably suffering from dementia præcox, had been in a State Hospital for four years : a maternal first cousin was probably suffering from dementia præcox ; a maternal uncle had epilepsy. The patient herself had been a frail, delicate child, studious at school, always seclusive, shy, timid, and religiously inclined. She was, however, a most competent housewife, and in many ways was the mainstay of the family. Following her recovery an attempt was made to review the patient's psychosis, but she was quite content to allow things to remain at a surface level, and adopted the point of view of leaving well alone.

This case, too, like the preceding one, shows clearly how an individual with rather narrow general interests, whose resistance no doubt had been somewhat undermined by a poor state of health, reacted in a faulty way by developing a mute, stuporous condition, which in all persisted for a period of twenty months. Again, however, apparently as a result of her inherently good stuff, a good readjustment was made.

(6) A young married woman, æt. 29, one month previous to admission, while suffering from a severe cold heard that a man living in the next apartment had developed pneumonia. She immediately came to the unfounded conclusion that she must be the source of infection, and in consequence of this fear started to worry. During the next few weeks she was nervous and excitable, "did not seem to know what she was doing," "talked out of her head." She sang and prayed, said that God had told her to do those things, and stated that she had seen angels and spirits. She made several attempts to leave the house in a nude condition, spoke less and less, became dull, but always recognised everyone around her.

On admission she was noticed to keep her mouth covered by the bedclothes, and frequently put her hand over her eyes.

She answered a few formal questions, but could not be induced to give any description of her illness. She allowed her limbs to be passively moved, and indefinitely maintained them in awkward positions, saying, "God tells me not to move." At other times she would behave impulsively, would suddenly get out of bed and run up the ward, explaining that the voice told her to behave in such a way. She likened the sound of God's voice to thunder, and she was told that she was going to destruction, that this was not the proper place for her, and that the second coming of Christ was at hand. In addition to her auditory hallucinations she had had the vision of a spirit's flight upwards—"just something white, not exactly in the form of a bird."

Her head felt perfectly clear, she was correctly oriented for time, place, and person, and her memory both for remote and recent events was quite good.

On the day following admission she had a feeling that her brain had changed, and said, "I heard voices of the Heavenly King, and voices of earth—I had imaginations that people did not like or want me—I disobeyed God's voice and He is angry with me, and said I should destroy myself." When asked if anything in her life troubled her she replied by saying, "I have been remiss in my habits." The same morning she became exceedingly resistive to all attention, refused her meals, and showed a well-marked echo-praxia, following the nurse around everywhere, walking where she walked, and stopping where she stopped. She told how "spirits of heaven and earth" inside her had been destroyed by her swallowing poisonous substances. Gradually she became more and more secretive and inaccessible, her expression was staring and immobile, she allowed saliva to accumulate in her mouth, and breathed deeply with movement of the *alæ nasi*. For the next two weeks she continued to behave in the same dull, more or less stuporous way, took no interest in anything, had to be urged to eat, and to attend to herself in every way.

Gradually a state of betterment came about, her interest in things was redeveloped, but when asked to discuss her psychosis she replied by saying that her difficulties were between God and herself, and that in addition she had always been in the habit of keeping things to herself. She made a good readjustment, and a letter received from her husband six months

after her discharge stated that she was in splendid health both mentally and physically.

Her history showed that she had come from a healthy stock, that she had always been of a quiet, retiring, seclusive disposition, had been brought up in a strictly religious atmosphere, her chief outlet and amusement being church sociables. She was reticent, never a good mixer, always exceedingly sensitive.

(7) A young woman, æt. 19, one month previous to her admission complained of not feeling well, said that her heart hurt her, and became listless, uninterested, and drowsy. On one occasion she dramatically exclaimed to her mother, "This is our last walk together; I am going to die." On admission she was in a dull, mute, stuporous condition, took no interest in her surroundings, and paid no attention to painful stimuli. She allowed her limbs to be moulded into any position (*flexibilitas cerea*), but there was no catalepsy. She had to be spoon-fed, wet and soiled herself, and masturbated in an open, unconcerned, shameless way.

For several weeks following her admission no special change was noted in her condition; at times she would reply to a question or two, but a nihilistic trend was prominent, *e.g.* :

Please take your supper . "I can't pay for it—I can't stay here."

What do you mean? . "I can't—I am too poor."

Get into bed . . . "I can't—I have no money."

On one occasion she misidentified one of the nurses, calling her "Aunt May." On another occasion she had a peculiar, impulsive spell, suddenly jumped out of bed, fell face downwards on the floor, and made a loud noise like the barking of a dog. For the most part she continued to be very resistive, untidy in her habits, showed perseveration, at one time would eat ravenously, and at another time would refuse all food, saying that it stank. She smeared herself with her excreta, and in every way was most degraded.

Two months after admission some improvement gradually began to take place, and eventually she became cheerful, active, and industrious, and was discharged as recovered. She would talk quite pleasantly on immaterial topics, but as soon as her psychosis was touched on she took refuge in an absolute silence.

Her history showed that she had come from a neuropathic stock ; a maternal and paternal grandfather, her father, and a sister had all suffered from nervous troubles.

The patient herself had always been strong and healthy enough, but she had always been timid and seclusive ; had not cared for entertainment or amusement, and had been very keenly interested in Sunday-school work. Up till the age of 18 years she had been a bed-wetter.

The two last cases reported also show so clearly the conflicts and reactions already referred to that they need no further comment.

In general then it may be stated that a series of cases of catatonia have been presented which, from the purely symptomatic point of view, could not be readily differentiated or understood. Devine, it is true, has attempted to differentiate between deteriorating and non-deteriorating psychoses according to the presence or absence of confusion, except when of toxic origin. He agrees with Shaw Bolton in asserting " that mental confusion exists to a lesser or greater degree in all cases which are about to develop dementia, and that cases in which this symptom-complex are absent belong to relapsing or recurrent forms of insanity."

There is no doubt that a state of mental confusion—not of toxic origin—is, in a great many cases, of very ominous significance, but when the symptoms presented by the group of cases just recorded are analysed the fallacy of such a dogmatic statement as Shaw Bolton's is readily apparent, as in five out of the seven cases a certain degree of confusion was present. Other symptoms which have been used in differential diagnosis have been the patient's response or lack of response to painful stimuli, the presence or absence of hallucinations, the cleanliness of habits, etc. In certain cases, doubtless, some or all of these symptoms may be of very great importance, but the point which needs emphasis is that the only safe way of using them is in relation to the setting of the psychosis. For instance, the symptomatic picture in the first case of the series corresponded very closely to that seen in the other cases, but when one comes to study the setting in which the picture occurs two entirely different types of individual are found to be involved. In the first case we have a history of a frank, jolly, open, rather aggressive type of individual, the period of whose stupor was

both preceded and followed by manic episodes. On the other hand, although in the other cases the onset was acute, still we have to remember that we were dealing with individuals who had always been inclined to keep their difficulties to themselves, who showed in fact the shut-in tendencies so well described by Hoch, and whose psychosis was simply the culmination of a long period of mental conflict. In such individuals the cata-tonic state may be looked upon as a further crawling within the shell, as a period of defence during which the degree of resistance may gradually be built up, and a readjustment made. The completeness of this readjustment must depend to a very large extent on the amount of insight which the patient is able to gain into the nature of the psychosis. It stands to reason that a person who attempts to see how it arose, and what it signified, must necessarily come to a much better understanding of his actual difficulties and how to deal with them than the person who, once he gets over his illness, attempts to forget it. It is in this respect that our cases have fallen short. One and all of them refused to review the psychoses in any detail, and although to all intents and purposes the recoveries have been excellent, yet one cannot help feeling that their shut-in dispositions are going to render them highly susceptible to future attacks.

In this formulation undue stress may seem to have been laid on the mental factors, and although it is believed that in the majority of such cases they play the most significant rôle, yet at the same time it is readily admitted that in certain cases physical conditions are also of very great importance. Personally, I hold the opinion that the vast majority of the physical anomalies described, for instance, in dementia præcox are secondary phenomena ; but, whatever one's views in regard to that may be, this more or less individual way of approaching one's cases allows one to take both the mental and non-mental factors into consideration, and instead of divorcing them one from another, attempts to closely harmonise them into relation with the personality as a whole. Furthermore, the sooner we get out of the habit of ascribing this, that, or the other mental disorder to hypothetical toxins of which we have no evidence in the urine, blood, or general metabolism of our cases, and are content to study each case on its merits, the better it will be for the progress of our specialty. As far as pathology is con-

cerned, the investigations of Alzheimer, and the more recent studies of Southard, are of great interest; but so far not enough facts have been forthcoming to allow us in any way to talk about the pathology of dementia præcox.

In the meantime, do not let us worry too much about pigeon-holing our cases, but let us study each case from the point of view of the reaction type; let us try to bring the symptoms and evolution of the disorder into relation with the personality, and let us wait until *all* the facts have been obtained before we attempt to draw any differential conclusions. By so doing a live, stimulating, investigative spirit of work will be engendered which should enable us to pick out those types of individual who are most prone to develop psychoses, and, just as prophylactic measures have been adopted to protect those with a phthisical diathesis, so also attempts should be made to develop other prophylactic measures whereby those burdened with a neuropathic diathesis may be safeguarded.

I am greatly indebted to Dr. Adolf Meyer, Director of the Henry Phipps Psychiatric Clinic, Johns Hopkins Hospital, Baltimore, and to Dr. L. R. Oswald, Physician Superintendent, Glasgow Royal Mental Hospital, for permission to publish the cases reported.

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(¹) Read at a meeting of the Scottish Division of the Medico-Psychological Association, March 17th, 1916.

*Extracts from an Address delivered April 12th, 1916,
before the Zoological Department of the University
of Chicago. By CASPER L. REDFIELD.*

THE first thing I wish to call to your attention is the distinction between the foot-pound and the cubic foot. The foot-pound is used to measure work, and when work is stored it is called energy. The cubic foot is used to measure material substances, or the space in which bodies are contained. What I have to say relates to things measured by the foot-pound or corresponding unit, and not to things measured by the cubic foot.

If a man is sick he does not hire his doctor by the cubic foot. He hires him for the foot-pounds of intelligence he has. Not that we are in the habit of measuring intelligence by the foot-pound, but what I wish to direct your attention to is the fact that intelligence belongs in that class of things measured by the foot-pound and not in that class of things measured by the cubic foot.

The verb *to acquire* means to obtain by effort; by the performance of work, and work is measured in foot-pounds. If a man goes into a gymnasium he acquires strength by the exercise he takes, and the amount he acquires is measured by the foot-pounds of work he does. He will acquire more strength (muscular energy) by doing a million foot-pounds of work than by doing a thousand foot-pounds. Acquirements are also measured by time. A man who exercises regularly will acquire more dynamic development in a month than in a week, more in a year than in a month, and so on.

If an offspring is to inherit an acquirement made by the parent, the parent must make the acquirement first and get the offspring afterwards, not get the offspring first and make the acquirement afterwards. Among animals which work regularly the greatest acquirement exists in later life, hence, if acquirements are inherited, the better progeny should come from the older parents. On the other hand, if the better offspring do come from the older parents, that fact would mean the inheritance of acquirements, and mean nothing else. The reason is that age of parents represents time, and time is a factor in the measurement of work performed, and not a factor in the measurement of anything else.

It is commonly said that Weismann knocked out the doctrine of inheritance of acquirements and Lamarck's theory at the same time. Weismann did nothing of the kind, either directly or indirectly. He attacked Lamarck on the inheritance of mutilations, but if he had known anything whatever of the subject about which he pretended to give information he would have known that the assumed inheritance of mutilations had nothing to do with Lamarck's theory. He also would have known that Lamarck had distinctly stated that mutilations were not inherited.

We are told that Lamarck's theory is that the offspring inherit the effects of the action of the environment upon the parent. It is nothing of the kind. Lamarck took particular pains to caution his readers against putting such an interpretation upon anything he said.

Your text-books tell you that Lamarck's theory is "a species-forming theory." It is nothing of the kind. Lamarck says species are an artificial classification by man for convenience, but that they have no existence in nature, and have nothing to do with his theory. Lamarck's theory is a theory of the evolution of structural types by the action of habits formed in the struggle for existence, the kind of struggle being determined by the environment. Thus, animals living in water will struggle in certain ways; animals living in trees will struggle in other ways; animals living in the ground will struggle in still other ways; and so on. (See Packard's Translations.)

I am telling you these things for the purpose of pointing out to you that the doctrine which denies the inheritance of acquirements is based on an amazing amount of misinformation. It is also based on a total lack of scientific investigation of the subject. Acquirements are obtained by work, and work is measured in foot-pounds or some unit convertible into foot-pounds. No investigation of this subject can have scientific merit unless it makes some attempt to measure acquirements quantitatively, and compare such measurements with subsequently produced offspring.

A parent cannot transmit what he does not have. If he can transmit no more than he inherited, how can there be an evolution of animal powers, either mental or physical? Perhaps you think that such an increase might come by muta-

tion or advantageous variation. But stop a moment to think what that means. A child is born with something it did not inherit from its parents! That would mean that special creation had taken place somewhere in connection with the reproductive process.

But some persons say that there has been no evolution of mental power, and they point to the men of ancient Greece as being equal to anything which has since existed. I might dispute that claim, but there is a better answer. We are not descended from Aristotle, Plato, Socrates, *et al.* Our ancestors were savages two or three thousand years ago. The fact that there were great men in ancient Greece is not evidence that we are no improvement over the savages from whom we are descended.

But it is even said that we are not inherently superior to those savages, and that the apparent superiority comes from education and accumulated information sometimes designated as social heredity. But how about another three thousand years, ten thousand years, a hundred thousand years, and so on back? If you deny all evolution of mental and physical powers, then you return immediately to the Garden of Eden story, with each kind of animal originally created equal to anything which has since existed. If you attempt to dodge the Garden of Eden story, then you admit that a parent may transmit more than he inherited. That "more" must be something acquired, or it must be some special creation associated with reproduction. Something from nothing is just as wonderful at one place as another. The issue is not dodged by removing special creation from the Garden of Eden to the germ and dividing it into small fractions so as to spread it over many generations.

If you wind up a spring you store work in it. You can get out as much work as you put in, and that work may be used to drive a clock, pump water, compress air, or do any one of many other things. If used to pump water the energy (stored work) is taken out of the spring and stored in the water. It may then be taken out of the water and stored in some other place, and so on in endless succession. There are laws relating to energy, which laws govern it in all of its transformations. But the energy which went into that spring came out of your muscles, and you may be certain that those laws

governed that energy while it was in your muscles, and on its way to and from that place.

You may concede that fact, yet think that human intelligence stands on a different footing. A mathematical calculation performed by either the human intelligence or a calculating machine is the same thing, and things which are equal to the same things are equal to each other. The energy employed to drive the calculating machine is measured in foot-pounds, and the difference between the energy going through the machine and that going through the brain is a difference in the efficiency of the apparatus, and not a difference in the essence of the energy involved.

Energy is transformable into many forms, yet it is always the same energy, and is always measurable in foot-pounds or some unit which may be transformed into foot-pounds. Heat, light, electricity, physical strength, and human intelligence are different species of the genus energy. There are specific laws for each species, and generic laws for the genus. What I am driving at is to point out to you that the evolution of physical strength and human intelligence is and must be in accordance with certain generic laws which are definite and precise things in science.

The first of these laws is to the effect that you cannot get something out of nothing. If, in the process of evolution from monad to man, we get successive generations of animals having greater and greater physical and mental power, the energy involved must necessarily have a source. That source can only be some existing form of energy. One trouble with the biological teaching of the present day is that it assumes conditions which involve a contradiction of this fundamental law known to science as the Conservation of Energy.

The second law relates to the behaviour of energy, and the only possible conditions under which it may be conveyed from its source to an available condition in man or mechanics. This law says that energy left to itself always dissipates, and can be raised to an available condition only by the performance of work. This means that if there has been an evolution of mental and physical powers at any time in the past, that evolution was necessarily the product of work performed. Unless you are prepared to denounce as unsound the fundamental laws of another science, this is a conclusion you must

accept. This second law is known to science as the Dissipation of Energy, and a large amount of the scientific progress during the past half century is based on a recognition of the soundness of this law.

The eugenists are telling us that the superior part of the population is producing an average of about a child and a half to the family, while the inferior part is producing some six or eight children to the family. That is a partial truth which may be a new discovery to the eugenists, but it is not a new phenomenon in the history of man. The same thing existed fifty and a hundred years ago; five hundred and a thousand years ago. It existed in ancient Greece, and there are indications that it existed in China at the time of Confucius.

The eugenists tell us that from the feeble-minded we get only feeble-minded, but if we are not all descended from feeble-minded ancestors, then evolution is false. Evolution tells us that we are descended from a common ancestor with the ape, and we cannot assume that common ancestor to have been mentally superior to those members of our community which we now designate as feeble-minded. Go back only twenty generations (about 600 years), and each one of us has more than a million ancestors taken from the common stock. In a population of a million there are many feeble-minded persons. But, on the test of family size, we can find them much nearer. None of us can go back far in our pedigrees without coming to large families. Under the Binet test, our eugenists would condemn their own ancestors as unfit to reproduce, and they would find those "unfit" ancestors much nearer than most of us suppose.

There is, and always has been, improvement in power capabilities from generation to generation. The most clearly defined and best recorded case is the American trotter which was developed from the three-minute trotter to the two-minute trotter in a hundred years. I have published full details of the process by which this improvement has been brought about, yet those who deny the inheritance of acquirements have deliberately shut their eyes to this definite and positive evidence, and have gone on repeating their unfounded statements.

But you need not take the evidence I have collected. You can see the same thing from the animals with which you deal.

Acquirements are obtained by the performance of work. With that in mind it can be seen that the amount of work performed per generation before reproducing by the different kinds of animals, is an accurate representation of their advancement in power capabilities. This is true for all kinds of animals, but is most easily seen in the higher animals. Man is intellectually superior to other animals simply and solely because he is mentally active more hours a day for more years before reproducing than any other animal. Increase the amount of work per generation and the race will advance. Decrease it and the race will degenerate.

Presidential Address (1): Our Work as Psychiatrists, and its Opportunities. By EDWARD N. BRUSH, M.D., Physician-in-Chief and Superintendent, Sheppard and Enoch Pratt Hospital; Professor of Psychiatry, University of Maryland, Baltimore, Md.; President of the American Medico-Psychological Association.

[We have received the following Address from Dr. Brush, who, knowing that we have had some difficulty in obtaining sufficient material for the Journal since the war began, kindly offered it for publication in our pages, while it will appear simultaneously in the July issue of the *American Journal of Insanity*, of which Dr. Brush is the Managing Editor. He is also the President of the *American Medico-Psychological Association* for the current year, and his views will no doubt be full of interest for his colleagues in the specialty on this side of the Atlantic.—EDITOR, *Journal of Mental Science*.]

FELLOW-MEMBERS OF THE AMERICAN MEDICO-PSYCHOLOGICAL ASSOCIATION, LADIES AND GENTLEMEN,—The Constitution of the Association requires that the President shall prepare an inaugural address, which he shall deliver at the opening session of the meeting. Beyond that requirement it does not go. It gives to the anxious President during the term of his office no hint either as to subject, matter, or manner of that address. The necessity of its preparation haunts his waking hours and troubles his sleep—and there are betwixt his

induction into office and the delivery of that dread address "more pangs and fears than war or women have." The consciousness is always with him of the greatness of the occasion and his own insignificance.

Permit me primarily to welcome you to the deliberations of the Seventy-second Annual Session of this Association. I esteem it, as I have already attempted to tell you, the highest honour of my professional career that I have been called to this high office through your generous partiality. Your selection is to me, at this time, particularly gratifying because it marks a quarter of a century since I was called to the superintendency of a hospital, and thereby became entitled to membership in the "Association of Medical Superintendents of American Institutions for the Insane," by which name this organisation was formerly known. That Association, of which this is but a continuation, under a new and more appropriate name, was organised in 1844, and has been in continuous and active existence ever since. It is, therefore, the oldest national medical association on this continent.

One is tempted on an occasion like this to review its history, but that has been done by more than one of my predecessors, and you will have an opportunity to read that history in the opening chapter of the first volume of a monumental work undertaken by Dr. Hurd and his associates, *The Institutional Care of the Insane in the United States and Canada*, which has just been issued.

Far be it from my purpose to criticise the body over which I am chosen to preside. It is not in any spirit of criticism that I propose to point out the fact that this Association has not been as assertive as it might have been; that while its deliberations have been of great and lasting value to humanity, and to the advancement of the improved care and treatment of the insane, it has contented itself too often in registering its opinions or findings, without following up those findings by attempting to impress them upon public and professional opinion.

In short, while moulding the opinion and practice of its members, it has too often, except in purely local matters, neglected to use the weight of its influence in matters relating to the entire body politic.

The admirable address upon "Publicity and the Public Mind," to which we listened last year from a gentleman whose

profession it is to mould public opinion through the press, must have brought home to your minds, as it did to mine, the question, How much are we doing to train and inform the public mind?

Our predecessors in the early days of the history of this Association were confronted by certain problems which were of paramount importance at that time. These had reference largely to matters relating to providing suitable accommodation for the insane who were languishing in jails and almshouses, or wandering at large, and were local problems to be solved in accordance with local conditions. The problems which confronted different communities were, with rare exceptions, taken before legislative bodies rather than, by a campaign of education, brought before the whole community.

For obvious reasons this was necessary. Not only must the legislature make appropriations out of the public treasury for construction and maintenance of hospitals, but laws had to be enacted governing the commitment and detention of patients and the administration of the new institutions.

As the country developed, as new States were settled, and new demands made for provision for the mentally disordered, these new States took advantage of the experience of older communities, and this Association formed a general clearing-house for the exchange of such experiences.

In the matter of hospital construction and general management few things were imported from abroad, and those mainly related to architectural detail; and there grew up a distinctly American system of hospital construction and management, modified as to the latter by the varying views of different bodies of law-makers, but in the main receiving its directing and effective force from the membership of this body.

This work, great and valuable as it was, and lasting as its influence will be, did little toward educating the public mind, and came but little in contact with the minds of medical men working in general or special fields of practice.

Absorbed by the intensity of their own labours and the factors of their own problems, our predecessors took little pains to interest others in their labours, and as a consequence were looked upon as isolated from the great mass of the profession, and as having no interest in the work and aspirations of its members.

In the same degree the members of the general profession took little or no interest in the work of the psychiatrists, and either ignored it altogether, or had very warped and distorted views concerning it.

Gradually, partially as the result of influences within our own organisation, partially by reason of pressure from without, a *rapprochement* between the psychiatrist as a hospital doctor and the doctor in general practice is being brought about, to the manifest benefit of each. Much, however, remains to be done in this direction. We need to see more of what the extra-mural workers are doing, and we should give them more frequent and larger opportunity to observe our work and methods.

It may not, therefore, be considered out of place, though I confess I enter upon the task with much hesitancy and a very lively appreciation of my inadequacy to the occasion and of my own short-comings in some of the very matters to which I shall refer, that I ask your consideration of, and attention to, some details in which both the Association as an organisation for public good and its individual constituents can make their force more effective. Not only can this be done to the benefit of the members of the Association, but to the advancement of the science of psychiatry and to the general weal.

This is the age of workmen's insurance, pensions for widows and the aged. It is proper, I think, that a body such as this, composed of workers in a special field of endeavour, where often the workmen are poorly compensated when their stipend is measured by the income of professional men in general or special practice, should consider whether some steps ought not to be taken to secure for physicians who devote their best years to the care of the mentally disordered and defective a more secure tenure of office than is now found in many localities, and at the end of a certain period of service the right to retire upon an allowance, sufficiently liberal to secure them from the danger of want at a period of life when active and remunerative labour is no longer possible. I have before me as I write a letter from a physician who has given more than half a century of his life to public service, whose labours for the insane and for their better care have given him an international reputation, and have reflected credit upon his profession and particularly upon this Association, one whose name adds lustre

to our roll of members. He says : " Please do not from any motive of delicacy, or any other reason, fail to consider the subject of a retiring pension to Superintendents after certain years of service. I am not a sufferer under the present system, fortunately having some income (a modest one), yet the principle is almighty and right and just." He then refers to the work of one of the pioneers in psychiatry in the West, who was deposed by reason of political preference after years of service to his State and country, and left with little or no means to comfort his declining years. " No one," he goes on to say, " saves from a salary a competence." He urges, therefore, some provision for a " retiring allowance," a term which he prefers to the word " pension," in which preference all will, I think, concur.

I believe you will all admit that the subject is an important one, and one which deserves your careful consideration. It is difficult, however, to point out how, except in incorporated and endowed institutions and in public hospitals in a few States, a system could be inaugurated by which medical officers—for I would include in the list assistant physicians as well as medical superintendents—can be assured after a definite time of service and reaching a certain age, that they may retire upon an allowance sufficient in amount to materially assist in their maintenance for their remaining years of life.

At the McLean Hospital in Massachusetts there is a rule retiring the Medical Superintendent and the first and second assistant physicians at the age of sixty-four years with a salary, after serving not less than fourteen years, equal to 60 *per cent.* of the salary received at the time of retirement, to be continued " so long as the Trustees vote yearly to so pay."

The Board of Governors of the Society of the New York Hospital in May, 1914, adopted a pension system. The employees of the hospital are divided into two classes. In the first class is the Medical Superintendent of Bloomingdale Hospital, which is a department of the New York Hospital, together with certain other officials of the New York Hospital and of Bloomingdale. In the second class are all other employees of the hospital. All employees in the second class are retired on attaining the age of sixty-five years, and, if they have been for fifteen years preceding such retirement in the continuous service of the hospital, are eligible for pension.

All employees in the first class who have been for fifteen years or more in continuous service of the hospital at such time, may, at their own request or at discretion of the retirement committee, be retired and are eligible for pension.

There are certain other regulations and stipulations contained in the system adopted, which I do not think necessary to quote. I know of no other institutions in this country which have a pension system.

In Great Britain, or at least in England, medical officers have a retiring allowance after a certain period of service. I recall a visit to one institution near London several years ago where there were three Superintendents on the pay-roll—one active and two superannuated.

In the Presidential Address before the Medico-Psychological Association of Great Britain and Ireland, July, 1878, Dr. James Crichton-Browne said: "Independence of action, fixity of tenure, and security of pension, are what asylum medical officers are entitled to ask, not only with a view to their own comfort, but with an eye to the welfare of their patients and the claims of science. And the latter consideration, the claims of science, ought not certainly to be lost sight of in any advocacy of the interests of our specialty that may hereafter be necessary, for it is tolerably certain that the title of our specialty to public deference and acknowledgment must be founded henceforth mainly on its scientific character" (1).

What the President of our sister Association said thirty-eight years ago is to-day true of this Association.

If we expect the recognition of the public and its support in our just demands for adequate remuneration, and the assurance of a support for the years which remain to us after active duty is no longer possible or advisable, we must be able to show the fruits of our labours.

How is this possible, however, under the conditions which obtain in many States, and how are "fixity of tenure" or "independence of action" to be expected?

Some years ago I looked over the annual report of a hospital for the insane in a State, where from the general intelligence of its people better things would be expected, and found that in thirteen years nine Superintendents had been appointed to direct the destinies of the institution, and supervise the medical care of its patients.

In other States, Governors have asked and received the resignations of Superintendents of State hospitals, and have appointed or directed the appointment of men to their positions who had, as far as I can learn, no previous training in psychiatry—no experience in hospital management of any kind, and presumably no previous medical experience sufficient to obtain for them a private practice large enough to deter them from yielding to the tempting political plum held out for their acceptance. What independence of action could men holding such positions be expected to have? Is it not the rule of the political game that such appointees must give a *quid pro quo*? Can you imagine their ability to resist the appeals, or more often direct orders, to make minor appointments not because of fitness, but to help the party in power?

Under such conditions considerations of retiring allowances are useless and a waste of time. No officer remains long enough in office to earn one. I had almost said no officer taking position under such circumstances deserves one.

I have known men appointed through political influence who rose to the situation which confronted them through painful and painstaking effort, who, realising their limitations, set resolutely about the matter of correcting their deficiencies, and who, in the end, became an honour to their State and their specialty. These men possessed a force of character which compelled a recognition of their work and merit, and deterred future political interference. But even they were handicapped by the manner in which they obtained office, and much of their time which could have been given to more useful work was spent in convincing political hangers-on that the care of the insane, the nursing of the sick, the conduct of a hospital were matters above the grasp of the spoilsman, and that there was no political "*open sesame*" to positions within their appointing power.

Such exceptions, and they are few, but prove the rule that appointments to positions requiring scientific ability, medical skill and judgment, and looking to the best interests of the hospital, its patients, and of the community at large, the taxpayers, should be made by reason of fitness and merit, and for no other reason under Heaven.

"There is no political alchemy," says Herbert Spencer, "by means of which you can get golden conduct out of leaden

instinct." What, therefore, is the remedy to the conditions which exist in too many communities in this land, conditions which stand squarely in the way of progress, which make some of our institutions a byword and a reproach?

The Association has again and again in one way or another put itself upon record as opposed to political control or interference through appointments to positions or purchase of supplies, in institutions for the insane. The history, *The Institutional Care of the Insane in the United States and Canada*, just issued, will be found to refer to many instances of flagrant abuse in this direction. Instances are given of Superintendents who, after years of faithful and most valuable service to the State, have been summarily removed because they were not supposed to be in "harmony" with the political dogma of the party in power.

There is no one acquainted with our political system but will admit that the evil is deep-seated and difficult to eradicate. The shibboleth "to the victors belong the spoils" would be expected from the mouths of bands of marauding bandits, but not from the lips of men who are supposed to be interested in working out the destinies of a people whose aspirations are for a "government of the people, for the people, and by the people," and not an exploitation of the people by the politician for his own interests and that of his supporters.

By slow educational development, by a steady and gratifying growth of a class who are independent of political affiliations, by the introduction of civil service laws in some States, the powers of the spoilsmen are being curbed, and their control over the destinies of public hospitals weakened. The good work can only be carried on by the education of public opinion, by teaching the people and their representatives the absurdity, to call it by no worse name, of selecting men for scientific work because of party loyalty and political influence.

Not until such education begins to show the development of more intelligent methods may we expect to meet with any success in an attempt to secure continuing tenure of office based upon good work, and after a reasonable period of such service the right to retire upon an allowance.

The President of the British Medico-Psychological Association, from whom I have quoted, said of our specialty in Great Britain: "With its past history science mingles, perhaps less

than we could wish. It is not implied that science has ever been ignored in lunatic asylums since they passed under medical care, nor that fruitful, scientific researches have not been pursued in them ; but it is argued that more engrossing occupations have hustled science into a subordinate place, and that non-scientific methods of studying insanity have prevailed." The speaker goes on to say : "In the literature of insanity to-day (referring to Great Britain) there is no attempt at mental analysis, and only the most perfunctory attempt at a classification of the expressions and products of the disordered mind. Half a dozen phrases such as 'excitement,' 'incoherence,' and 'depression' comprise our whole psychology, and even these are sometimes employed in a slipshod fashion" (2).

The address from which I quote was made thirty-eight years ago. During the entire period which has since passed my work has been in hospitals for the insane. I have endeavoured to keep myself posted as to what was being done, the methods pursued, and the results, as related to real contributions to psychiatry, which came from American hospitals, and while in many localities there has been a manifest and gratifying evidence of real advance, this has been in distinct and somewhat isolated institutions. There has been no general and marked improvement in all of our hospitals, such as has been seen in the same time in general hospital work. We are not alone in this respect ; our English brethren have recently been taking stock of their position in the psychiatric world. In 1911 a Committee of the British Medico-Psychological Association was appointed to consider the "status of psychiatry as a profession in Great Britain and Ireland, and the reforms necessary in the education and conditions of service of assistant medical officers."

This Committee made a preliminary report in 1913, and its final report was presented in July, 1914.

I do not propose to go into the details of this report, but some of the findings so well apply to American psychiatry that I am forced to refer to them. The defects in Great Britain and Ireland in the status of psychiatric medicine are divided into three groups :

"(1) Absence of proper provision for the early treatment of incipient and undeveloped cases of mental disorder.

"(2) Few facilities for the study of psychiatry and for research.

"(3) The unsatisfactory position of assistant medical officers in respect of professional status, the prospects of a career, and the conditions of asylum service" (3).

To meet the first and second conditions it is proposed to establish at teaching centres clinics equipped for research work, and to bring into closer co-operation the general practitioner as represented by the teaching force in the general clinic, and the psychiatrist in the special clinic. In these clinics post-graduate work would be afforded to the assistant medical officers from the hospitals for mental disorders. To supplement the training in the special clinic better means and better methods of clinical work are suggested in these hospitals, with properly equipped laboratories and trained laboratory workers.

Various methods are proposed to improve the status of assistant physicians, to enlarge their professional horizon, and to attract a better class of men to the service.

Among the suggestions is one which is worthy of note : That assistants should be appointed on probation, and should not become established officers until they had passed an examination in psychiatry, the law as related to the insane, and in hospital administration ; with, at the same time, on the part of the authorities, a larger use of the power of retiring medical officers who have shown themselves unsatisfactory.

How often, I wonder, are unsatisfactory assistants continued in office—men who have shown no ambition or no fitness for the work, or who have grown indifferent and stale—because of the disinclination on the part of their superiors to perform an unpleasant duty, or because a successor is difficult to find.

What American psychiatry needs to-day is that the institutions for mental disorders shall be, in function as well as in name, hospitals. The same pains in the study of all the aspects of each case should, and can, with an adequate and trained staff, be taken in our hospitals as in the better class of general hospitals. More pains, greater minuteness of study, indeed, are required in cases which come under our care than is the case in physical disorders, because we deal commonly with a physical disorder plus a mental disturbance, each often making and rendering difficult of elucidation the essential details of the other.

To accomplish this we need an influx of well-trained, enthusiastic, ambitious young men into our wards.

We need in all our large cities in connection with our medical schools, clinics of psychiatry for both teaching and research work ; for laboratory and ward work which cannot be undertaken in the isolated hospitals, but in which men from these hospitals can participate, as post-graduate workers, carrying back to their own work the ideals and the methods of the clinics. These clinics must be controlled by a power independent of State or municipal authority, otherwise there can be no certainty of proper appointments or of secure tenure of office.

Our hospitals should be centres of social service, especially in the way of instruction in mental hygiene. In the matter of prevention hospital medical officers have a large and inviting field of labour. They should take a lively interest in the matter of public education, because, to my mind, that lies very near to preventive work. I am in accord with Dr. Chambers in the Presidential Address before the British Medico-Psychological Association in 1913 : " When the prophylaxis of the psychoses is in question, it is necessary to insist on the cultivation of mental life and expansion ; on the creation of a mental atmosphere no less above suspicion than the physical ; on pure food for the mind as well as for the body " (4). Not only is this true and necessary as regards prevention of mental disorder, but we must remember the words of Huxley spoken at the opening of the Johns Hopkins University in 1876 : " Your sole safeguard is the moral worth and intellectual clearness of the individual citizen " (5).

Pauperism, crime, the alcohol question, all come within the purview of the physician to the hospital for mental disorders, and he should prepare himself by study, not only of his patients, but of their antecedents and surroundings, their work and their recreations and habits, to speak with authority. How many of us to-day can give the reasons for the opinions which we hold, more or less tenaciously, upon the influence of alcohol in the ætiology of the psychoses, and yet it is a question daily asked, and a question whose solution is in our hands.

The after-care of discharged patients is happily being undertaken by hospitals through their medical officers or special agents, trained social workers, trained in the needs of the mental patient. This work should be widely extended. We can take lesson from Timon of Athens, who taught that

" 'Tis not enough to help the feeble up,
But to support him after."

The hospital which is so situated that an out-patient service can be maintained will find here a rich mine for exploitation, and one which will aid materially in bringing cases promptly under care. If the hospital physician can fortunately engage in clinical teaching by reason of proximity to a medical school, he should take advantage of the opportunity. Nothing sharpens a man's wits so much as contact with a critical audience such as is found in a senior medical class. The hospital which is doing its full duty is itself a place of education, for the training of physicians in psychiatry as applied to medical science, and in medical science as applied to psychiatry ; a place for the training of nurses, and a laboratory of psychology as well as of clinical medicine. The medical director who does not see opportunities for work beyond the restricted horizon of his hospital inclosure is short-sighted and misses his opportunities for the best work, and the Board of Directors which does not encourage him in making the best use of such opportunities does not appreciate the full value possible to the community in the institution which it supervises, nor the opportunity for making the institution do its full duty.

This is the day when efficiency in all departments of human endeavour is preached. The man, the machine, the institution which is not working to its full efficiency is a losing proposition.

It may be difficult sometimes to make those who hold the control, who govern the expenditures, see that some of the best returns from institutional activities can often be found in fields which at the first glance do not appear worth cultivating, or which appear to lie too remote.

No better method could, in my opinion, be devised for awakening public interest in, and public support and sympathy for the work of hospitals of our special kind, than showing the public that the medical officers of these hospitals have not only an interest in the welfare of the patients in the wards, but also in that of the people of the community, in their health, in their work, in their environment, in their cares and perplexities, in their social problems.

In the words of Lugaro, "All progress in knowledge and civilisation is a contribution to the solution of the problems which psychiatry brings forward and elucidates, but which it cannot resolve unaided. If the work which has to be done is gigantic, we can encourage ourselves with the thought that it

is to a certain extent the task of all good citizens. It is no mere medical work, but rather one of social regeneration" (6).

The annual report of a member and former President of this Association, for the year 1915, to the trustees of the hospital of which he is Superintendent, opens with this sentence: "The besetting weakness of a hospital superintendent is the complacency with which, when rendering the annual account of his stewardship, he reviews the operations of his particular institution" (7).

Is it not possible that too often that complacency is not only shown at the time of making our annual reports, but is a continuing condition of mind with many of us throughout the entire year? Are we sufficiently "alert with noble discontent"? Are we not too frequently satisfied if our patients are comfortably housed, our wards not too crowded, the routine of the day's work not interrupted by untoward accidents, and our statistical table up to the general average as to the percentage of recoveries, and possibly a little below as to the percentage of deaths? Are we content with keeping up with the procession, or are we ambitious to lead the van? Do we indeed keep up with the procession when we compare our work and results with what is being done in general hospitals all over the land?

I know that such queries are not always well received. I pray you, however, to remember, if anything I may say or have said appears to be in the line of criticism, that "faithful are the wounds of a friend."

A. C. Benson (*The Silent Isle*) has this to say of the critic who helps him: "I would welcome (him) even if he knew but little more than myself; while if my guide is infallible and disdainful, if he denies what he cannot see, and derides what he has never felt, then I feel that I have but one enemy the more, in a place where I am beset with foes."

I do not place myself in the category of those who know a little more than you, but, on the contrary, much less than many. Neither do I propose to deny what I cannot see nor deride what I have never felt, but for more years than I care to remember I have watched the progress of general medicine and surgery and that of psychiatry, and have longed for the time when, as a field of work for ambitious young men, psychiatry should come into its own. I believe the time is coming; it remains for us to hasten or hinder the day.

The mass of material that is at hand, the many most interesting but unsolved problems in our work should, it seems to me, attract, and will attract, a band of workers who in time will bring us answers to some of our questions, if we but show ourselves willing, not only to encourage, but to co-operate in the work.

The duty of the hospital is not alone to the patients of to-day, but to so mark, learn, and inwardly digest the conditions which led to their being patients, and the clinical manifestations both physical and psychical which they present, that it can better serve the patient of to-morrow. But some will answer : we are serving the patient of to-day far better than was served the patient of the yesterdays of the past. I gladly admit that, as far as material surroundings, nursing, greater liberty, and to some extent better medical care are concerned, we are doing far better by our patients than was thought possible when this Association was formed, and for a long time thereafter. But are we to stop here to rest with deadening complacency upon our few laurels ?

Had that been the course pursued in general hospitals, what would have been the situation in general medicine and surgery to-day ?

I do not read aright the purposes of this organisation, I seriously under-estimate the intelligence and capacity for real work of its members, if I am forced to admit that to them the present state of psychiatry is a satisfactory one. This very meeting, your presence here, at the sacrifice of time and comfort and money, indicates a purpose to confer together for the uplift of our special work, for the advancement of science, for the benefit of humanity.

Solomon wrote long ago : "I builded me houses, I planted me vineyards, I made me gardens and orchards, and planted trees in them of all kinds of fruits. Then I looked on all the works that my hands had wrought and on the labour that I had laboured to do ; and, behold, all was vanity and vexation of spirit." In the same way in too many instances we have builded houses and planted gardens and orchards, and our reports tell with complacency to Governors and legislators and governing boards of the excellent condition of the buildings and the fine crops from the gardens, but all is vanity and vexation of spirit to him who looks for something in the way of scientific observation and carefully drawn deductions which shall throw

light upon the ætiology and treatment of mental disorders. You will recall, however, that Solomon, having found the vanity of the things which he had constructed with such pride, said : " I applied mine heart to know and to search, and to seek out wisdom and the reason of things . . . even of foolishness and madness."

At the meeting last year, in the discussion of certain papers many complimentary things were said of the work of the young men. One gentleman, one who but recently most acceptably filled the position in which I to-day find myself, made use of the following expression : " We must encourage these young men ; the future life of this Association depends upon it, and the future of psychiatry depends upon it." Another member said, and I wish to emphasise his statements because I consider them pregnant with ideas of the utmost importance in the development of psychiatry : " In the better managed hospitals of the present time there is an infinitely broader field for the ambitious young man than was the rule twenty years ago. State hospitals of to-day, which have developed a reasonable degree of medical activity, furnish a field for the better type of recent graduates that can be made as attractive as any other branch of medical activity. In order that this type of young physicians can be induced to take up hospital work seriously there must be some inducement offered other than board and salary. There must be added the promise of professional advancement.

" The development of medical work in our various state institutions depends solely upon the type of men that can be interested in the work as a permanent vocation. The better the organisation, the greater the medical activity in any hospital, the better it will be for all concerned, but especially for the raising of medical standards. In the development of our medical work, and especially in the spreading of fuller knowledge concerning the prevention of insanity, there is a fertile field for the full expression of the best type of medical work."

" To accomplish the desired results in our medical work it must be so organised that men can enter the junior grades with the expectation that their experience will be such as to aid in their medical development, and that they can leave the service with an addition to their mental equipment if the work does not prove permanently satisfactory. The development of a

medical service that will make this possible assures to each patient the best possible protection against medical inefficiency " (8).

It is to the younger men, therefore, of this Association that we must turn for hope for the future. Let us see to it that nothing stands in the way of their work, let us encourage them by greater freedom of action, by increased privileges, by a more assured tenure of office, by such opportunities for study and investigation as shall broaden their medical knowledge, and be of sound value in any future field of work.

Osler urges the clinician to look well to his companions to see that they are not of his own age and generation. "He must walk with the 'boys' or else he is lost, irrevocably lost; not all at once, but by easy grades. . . . To keep his mind plastic and impressionable he must travel with men who are doing the work of the world, the men between the ages of twenty-five and forty" (9).

And so, my younger associates, you see what the task is, how we choose you as best fitted to undertake it. You will dream dreams and have visions, and if they are of your work, well. We, too, who have preceded you, have also had our visions; we, too, have caught glimpses, or at least thought we did, of results which should reward our labours, and redound to the benefit of the race, but sometimes, alas! the fruits of our labours, like the Dead Sea apples, have turned to ashes as we thought to pluck them. Such may, at times, be your experience; let it not dishearten you. For a time, perhaps, a mere sense of duty will keep your interest alive in your work. "Presently the quick, curious, restless spirit of science enlivens it, and then it becomes an excitement, and then a pleasure, and then the deliberate choice of the mind" (10).

Let me beg of you, however, to take for your motto, "*festina lente*." Remember the words of Pasteur at the opening of the Institute named in his honour: "For the investigator, it is the hardest ordeal which he can be asked to face—to believe that he has discovered a great scientific truth, to be possessed with a feverish desire to make it known, and yet to impose silence upon himself for days, for weeks, sometimes for years, whilst striving to destroy those very conclusions, and only permitting himself to proclaim his discovery when all the adverse hypotheses have been exhausted."

Do not, moreover, sink your humanity in the calm investigator, the silent looker-on in life's phenomena, which are also, too often, life's tragedies, which cry aloud as often for your sympathy as for your skill.

We are not, however, leaving the work to your hands alone. We beg to come now and again to light our torches anew at the fires which you have kindled, and to still hold them aloft until that inevitable time arrives when we must turn them over to you to bear alone along the course.

My Fellow-Members,—To all there come occasions in life which are great or important, which afford great opportunities. On such an occasion, and I view this as one, it is an unhappy circumstance which makes one fear that he shall not satisfactorily meet the occasion or worthily treat his subject; feeling, moreover, while he is speaking, how easily he may fail in explaining what have been the aspirations very close to one's self, and growing out of one's life-work. Much that I have said badly and haltingly and with poor grace you will forgive. Much that I would have said you will understand better than I could have expressed it. We are banded together in a good cause, and our hopes and prayers are to see:

“The good cause, despite venal friends
And base expedients, move to noble ends.”

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Clinical Notes and Cases.

"Pseudologia Phantastica, or Pathological Lying, in a Case of Hysteria with Moral Defect." By
WILLIAMINA SHAW DUNN, M.D., D.Sc.

So little has been written in this country on Pseudologia Phantastica, or Pathological Lying, that Dr. George Robertson, Physician Superintendent of the Royal Asylum, Edinburgh, has urged me to report the following case of this disorder associated with hysteria and a certain degree of moral defect.

The patient, J. M—, was brought to West House, Royal Edinburgh Asylum, on February 27th, 1916, from the Victoria Hospital, Edinburgh. He was certified as insane on the grounds that he had attempted suicide on two occasions—once by attempting to strangle himself with his pyjama strings, once by attempting to drown himself—and that he was hysterical, and had difficulty in answering simple questions.

On admission patient was quiet and polite in manner, but seemed somewhat dazed. He was put to bed in a ward where there were male attendants, and although he gave no trouble it was evident that he was very unhappy. He wept copiously, and refused to take his food. He was only too ready to talk, and within an hour of his arrival had confided to a sympathetic attendant that it was all a terrible mistake bringing him to such a place, as his people were very wealthy, that his father was a director of Lloyds Bank, and was at present on his way to Scotland in a Rolls Royce car. The fact that the patient was a slimly-built fellow of some twenty years, coupled with his evident distress, led to the experiment being tried of putting him with female nurses. He brightened up considerably, ate and slept well, and became very talkative. He now told us his "full history."

He said he was the only remaining son of wealthy parents, and that he was born in the south of England. At the age of thirteen he and some comrades had a misadventure with his father's motor launch and, fearing the consequences, ran off. He explained that there was no difficulty in getting money to run away with, as he was on an allowance and had money in the bank. With the money so provided the four boys crossed to Canada, where they went to a farm belonging to a relative of one of the boys. After spending some time on the farm, patient went into the city and took a job as a clerk. He then enlisted in one of the Canadian regiments and was sent to England, and from there to France. While in France he was "gassed," and had to be sent to London; later on he was sent to Aberdeen. He told wonderful tales of a small ape he carried as a mascot of his regiment, but seemed a little hazy regarding the ultimate fate of this pet.

While in Aberdeen he met with several wonderful adventures. He related that one day, while walking in a street in Aberdeen near the

Dee, he was set on by some roughs and robbed of his coat, wrist watch, and other valuables. At this time he also began to take "fits"—these he considers are the outcome of the gas in France. He said that because of these "fits" he was discharged from the Canadians, but as he pined for military service he came to England, and succeeded in joining the Gordons. He again developed "fits," and because of these he was sent to the Victoria Hospital, Edinburgh.

In the Victoria Hospital he was under the charge of a nurse to whom he was very attached. The nurse was off duty for some little time, and pranks were evidently tried upon her substitute. As an example, J. M— said to the man in the next bed that he would tie his pyjama strings round his neck, and the other man would give the alarm that he, J. M—, was strangling himself. At this point of the tale patient always became sad and said, "The joke worked too well, and here am I as a result." This was, of course, patient's explanation of one of the attempts at suicide.

In addition to the foregoing history he added a few artistic touches, such as the death of his only brother, who was a captain in an English regiment, the sudden death of his dearly beloved mother, and the brilliant marriage of his only sister.

The wild improbability of some parts, at least, of this tale was quite evident, and so inquiries were at once instituted, with the result that the true story patched from several sources was worked out. It is as follows :

He was born in 1896, and is the illegitimate son of a girl who was a maidservant of the humbler class. Her mistress herself adopted the patient from birth, and has treated him with great kindness, as even the patient attests. He left school at the age of fourteen, and was put to work at porcelain works ; he left this on his own initiative, and went for four months to a large commercial house. From there he became a grocer's errand boy, and next a hotel servant, and so on. He never stuck at any job, and led an idle, unsatisfactory life. He next enlisted in the King's Royal Rifles, but was discharged after sixty-three days' service as medically unfit. He joined the 8th Worcesters twice, each time being discharged as medically unfit. This took him on to June, 1915. He is reported to have joined the Royal Fusiliers, but he certainly enlisted in the 3rd Gordon Highlanders in the autumn of 1915, and was sent to West House as a private in this regiment. While in this regiment he was stationed in Aberdeen, and was in hospital for some little time. He evidently had a rather unhappy time with his comrades, who teased him, and he seems to have meditated suicide, and got as far as to walk into the Dee up to his knees, possibly with intention to drown himself. While in Aberdeen he began to take hysterical fits, probably in self-defence. When the other men "ragged" him he tried first to brave it out, then he wept ; this only provoked ridicule ; then he found if he held himself rigid, and simulated unconsciousness, his tormentors were genuinely alarmed, and he became the centre of sympathetic attention. He got into trouble with his sergeant because of insubordination, and was sent to Perth for punishment. While there it became evident that he required medical treatment, and he was sent on to Edinburgh to the Victoria Hospital. There is no truth in the statements that he has been in Canada or in

France. His conduct while in the Victoria Hospital was distinctly peculiar. On one occasion he went out very lightly clad and sat with his feet in the snow. He was always eager to elicit sympathy, and very probably his final indiscretion of tying the pyjama strings round his neck was done to call attention to himself as much as to play a trick on the sister.

After his admission to West House his behaviour at first was very good, but it speedily became evident that unless he got his own way he could be extremely sullen, impertinent, and insubordinate. After a short stay in hospital he was transferred to a ward with male attendants. This change upset him greatly, and he tried hard to get back to hospital by appealing for sympathy, and later by sullen insubordination; finally he tried a series of hysterical seizures, and was brought down to hospital and threatened with a cold bath. He thereupon recovered completely. He was sent back to the ward, where, under a *régime* of wholesome neglect, he speedily improved. The least individual attention on the part of the officials resulted in the patient either bursting into tears or embarking on a long account of fictitious happenings. After several weeks of inattention the patient was spoken to, and persuaded to give a truthful account of his doings. As the facts of the case were known it was an easy matter to check the patient when he deviated from the paths of truth. It was extraordinary the facility shown by the patient for romancing, and the difficulty he had in telling the plain truth. The slightest suggestion made by the interlocutor was picked up, and if not actually interwoven into the tale on hand appeared in a subsequent effort; for example—When speaking to him very shortly after admission, he mentioned that he had a sister, and a brother a captain. I slightly misunderstood him, and thought that he meant that he had a sister who had married a captain. I betrayed this mistake to him in course of conversation; he corrected me at the time, but next day gave me a full account of this sister's brilliant marriage to a captain in the army—he was even able to furnish details of the function down to the bridesmaids' dresses and bouquets. Although this was pointed out to the patient he was not at all ashamed, but admitted his tendency to romance. After the confidence of the patient was gained he began to be more truthful, but the habit of lying or romancing was so firmly established that only with one or two persons could he be relied on to be honest, and those persons had to be very watchful. Apart from this chronic habit of lying he manifested certain other evidences of moral obliquity. He seemed absolutely lacking in any sense of honour, and attempted on several occasions to get loans of money from persons who were manifestly unfit to lend money, with no hopes of repayment. He was utterly unscrupulous in taking advantage of any indulgence or kindness shown him, but had a superficial suavity and politeness of manner which served him in good stead. On the impulse he was quite capable of doing an unselfish deed, which he thoroughly appreciated and recounted to all and sundry for the next twenty-four hours, but systematically he was extremely selfish and inordinately vain. This vanity was, of course, manifested in his constant desire to call attention to himself, either by romancing wildly about his own antecedents, or by announcing that he was to commit suicide. When it was demonstrated that he was lying,

and that we knew that he was lying, when his "fits" and talk about suicide failed to elicit sympathy or interest, he was clever enough to pull himself together. After some weeks in West House he announced that he was to behave, but the improvement seemed to be due to the fact that his moral vagaries were unremunerative, and not to any improvement in his moral tone.

Physical examination.—Before describing the symptoms as they appeared when the patient was examined at West House, I should say that he was examined by Dr. Ninian Bruce at the Victoria Hospital, who found all the reflexes to be normal.

The physical examination did not reveal much. There was no sign of disease in the chest or abdomen, while the evidence from repeated examinations of his nervous system was very conflicting. When he was first examined it was found that the knee reflex on the right side was sluggish, while that on the left was normal. The same was found for the supinator, triceps, and adductor reflexes. There was no ankle or patellar clonus. The sensory reflexes followed the same rule, as the plantar, abdominal, epigastric, gluteal, scapular, and cremasteric were all slightly sluggish on the right side, and extremely active on the left.

The organic reflexes were all normal.

The sensory functions at the first examination showed great disturbance on the right side; the sense of touch, temperature, and sensibility to pain all being apparently diminished. The senses of weight, pressure, and position were normal on both sides. The diminution of the senses of touch, temperature, and sensibility to pain was so accurately limited to the right half of the body that hysteria was instantly suspected. Further experiments, in which it was strongly suggested to the patient that feeling was diminished on the left side, led to great confusion of symptoms. No weakness could be detected in any of the motor functions, neither was there any abnormality in the special senses except sight, which was defective. The customary tests applied to the cranial nerves gave normal results. The only physical symptoms, therefore, presented by the patient were the sluggishness of the deep reflexes of the right side, and the upset of certain of the sensory functions. As regards the first the sluggishness of the deep reflexes passed off, and at the end of three weeks the reflexes of both sides were equal and normal. The sensory symptoms, on the other hand, could be made to vary by persistent suggestion. As the patient improved the fact was demonstrated to him, and when examined by the physician in charge he gradually realised it was no use pretending, but with a newcomer he never failed to demonstrate some abnormality. This abnormality grew in degree according to the interest or sympathy displayed by the examiner. When challenged on this point he clung desperately to the theory that his feelings did change with different doctors; indeed it was found almost impossible to get him to own up in this matter. With so hysterical a patient it was extremely difficult to decide whether he really wilfully simulated symptoms, or whether he did not catch some suggestion from the examiner which so dominated him that he was practically hypnotised into presenting the symptoms.

The mental recovery of the patient, as indicated by a more stable emotional condition and by greater control over his conduct, coincided

with the disappearance, or partial disappearance, of his somewhat anomalous physical symptoms. The moral defect of the patient was, of course, a serious and unsurmountable difficulty in his complete recovery to a normal mental condition. Indeed so deficient was the moral sense that his apparent recovery seemed to be largely due to a realisation that being ill and troublesome did not pay in this institution, and not to any greater development of his moral sense.

My best thanks are due to Dr. George Robertson for kindly criticism and guidance in the preparation of this article.

Part II.—Reviews.

The First Annual Report of the Board of Control, for the year 1914.

The First Annual Report of the Board of Control for the year 1914 is a surprise from the fact that it contains nothing surprising. Its late appearance gave rise to some expectation that it might contain important new departures, but those who know the overwhelming amount of work that has fallen on the Board of Control can only wonder that any report has been forthcoming. Under such circumstances there can be no astonishment at this being almost a stereotype of its predecessors, containing little that can be called new.

Statistics, etc.—The number of notified insane persons in England and Wales on January 1st, 1915, after adjustment in regard to the Mental Deficiency Act, was 140,466, an increase of 2,411 on the previous year.

The increase was 563 on 1913, but was only 21 above the last quinquennial and 160 above the decennial average. The bulk of the increase went to the County and Borough Asylums, but 514 were in Workhouses and 132 in the Metropolitan District Asylums. The number in Criminal Asylums decreased by 42, and those living in the care of friends receiving Poor Law relief diminished by 139.

The patients in provincial licensed houses increased by 66, and private single patients by 16, but those in Metropolitan licensed houses decreased by 4, and in registered hospitals by 19.

The private patients in County and Borough Asylums are now 38·8 *per cent.* of the whole number. The Report points out that many patients classed as paupers are not so in a strict sense, many of them being maintained by their relatives, who refund the whole of their maintenance, and in some cases in addition a proportion of the construction and upkeep of the asylum. Although some of these are said to be classed as "private," it appears that they are treated as paupers. This does not stimulate effort on the part of the relatives to contribute to their maintenance, and it is surely desirable that some encouragement should be given, by transfer to the private annexes of the asylums, a portion of the

profits from which might be employed to make up any balance of cost (if the repayments did not amount to the actual expenditure in the annexe).

The proportion of males to females per 1,000 amongst pauper patients (January 1st, 1915), was 465·2 to 534·8, showing by comparison with the statistics of the private insane that there were 76 per 1,000 more pauper than private male patients. This is probably proof that many men of the private class become paupers because they have not wage-earners to support them as the women have, and is an added reason for extending all possible relief to the educated men who are inmates of pauper asylums. The diminished admissions and the number of vacant beds in the registered hospitals suggest that these might relieve the County Asylums of some of these unfortunately placed persons.

First admissions.—The statistics relating to the increase in the occurrence of insanity are yearly growing in interest since the “first admissions” were separately dealt with in 1898. The ratio of these to the population, which rose to 4·92 per 10,000 in that year, has averaged 5·13 in the last decade, and was 5·2 in 1914.

The accumulating records of the ages at the time of attack, and of the form of disease, ought soon to enable conclusions to be drawn in regard to the gravity of the diseased conditions leading to admission.

The diminution of the recovered discharges from 8,170 in 1905 to 7,457 in 1914, with a mean average for the ten years of 7,699, is not of very hopeful augury, but this may be of less weight if a majority of the admissions are at an advanced age or suffering from more unhelpful forms of disease.

The fact that the readmissions in the past year were 1 *per cent.* above the average of the last ten years, on a reduced discharge rate, may be indicative of greater instability, but might also be due to discharges of less completely recovered cases. In either case the desirability of the extension of “after-care” is indicated, and it is satisfactory to note that the Commissioners commend the discharge of patients “on trial” in some asylums.

New tables.—The two tables (11a and 11b) included this year in the Appendix of the Report, giving the population in age periods in each area from which asylums draw their patients, should be of great value in aiding the solution of the problems relating to the gravity of the mental disorders now and hereafter being admitted.

Effects of the war.—The Report draws attention to the withdrawing from the asylum service of medical officers and attendants owing to the war, and expresses regret at the death (being killed in action) of Mr. Crowther, who had been appointed to succeed Dr. Gaytón on his resignation. This subject, however, will loom so much more largely in the next report that it may be left without comment at present. The occupation of asylums as military hospitals, etc., will be a striking feature in the 1915 report. The weekly cost per head has risen by 3½*d.*, mainly as the result of the war, and a still larger increase must be anticipated.

The estimated expenditure for erection of new asylums, alterations, additions and improvements of those already existing, is £414,488, but

this will probably be greatly reduced under the stringent necessity of war economy.

The additions include the purchase of a house for the accommodation of nurses in connection with the "Maudsley Hospital."

Registered hospitals.—The registered hospitals are again admonished that, "As these institutions were originally founded upon a charitable basis, as large a proportion of cases upon unremunerative terms should be received as is consistent with the reasonable financial stability of the hospitals, and that the latter should not degenerate into luxurious homes for wealthy patients only, or principally for them." It is certainly very desirable that the managers of these institutions should consider whether they cannot perform more charitable work. The examples of the County Asylum annexes have shown that patients can be maintained on a pound a week as private patients at a profit, so that patients paying from 10s. to 20s. per week may fairly be considered as practically self-supporting under suitable conditions.

The Report gives statistics of the rates of payment in the case of the principal hospitals, classifying them into (a) those paying nothing; (b) those paying under 10s.; (c) from 10s. to 21s.; (d) 21s. to 42s. and (e) 42s. and upwards per week. From an examination of the statistics it appears that in the six hospitals whose weekly rate of maintenance ranges from £3 7s. 7d. to £1 18s. 4d., there are close on 12 per cent. of patients paying less than 21s.

The total income of these asylums is little short of £300,000.

In the four hospitals whose weekly expenditure ranges from £1 15s. 4d. to £1 6s. 7d., the number of patients received under 21s. is about 44 per cent., on an income of less than one-sixth of the previous class. So that considerably more patients are assisted in the latter class than in the former. It would seem indeed that the actual charitable outcome is in an inverse proportion to the rate of maintenance and to the number of highly paying patients, although one hospital shows that this is not an absolute rule.

No one would wish to detract from the valuable examples in treatment and administration which these institutions have given, but admiration and commendation of their good qualities should not be a bar to the duty of suggesting the means of making them still more valuable to the country, and worthy of still higher admiration and praise.

The Mental Deficiency Act, 1913.—This Act came into force on April 1st, 1914, and on that day the hospitals, institutions, and licensed houses which had been registered under the Idiots Act of 1886 became certified institutions or certified houses for mental defectives. A list of these, with other houses and homes certified or approved up to September, 1914, is given in the Appendix.

At the end of the year there were 2,959 cases thus accommodated, a very small proportion of the large number that will ultimately have to be cared for. The outbreak of the war, with the consequent increase of work and stringency of finance, the Report states, has greatly interfered with the development of activity in this respect.

Scientific research work.—Scientific research work suffered considerably from the outbreak of the war, contributions being reported only from the pathological laboratory of the London County Asylums

and eight others. Many asylums have no pathological laboratory or staff to work therein, but combinations of groups of asylums might yield valuable clinical observations, if working on a systematic basis. When the medical staff of the Board of Control overtakes its routine work and has any spare energy, this might be well employed in considering the numerous clinical problems which demand solution, and in suggesting the methods by which they could be attacked.

Information concerning all that affects the health of the nation will probably be greatly in demand when the war is over, and such questions may come to occupy popular and Parliamentary attention in place of the squabbles of party politics, which have so long led to the neglect of these and many other important national needs.

An Introduction to Social Psychology. By WILLIAM McDUGALL, F.R.S.Lond. Methuen & Co. Ninth edition, 1915. Pp. 431. 8vo. Price 5s. net.

The interest aroused by this volume is sufficiently shown by the fact that it is now in its ninth edition. It was originally published in 1908, and several of the subsequent editions have been revised, the present one containing an additional chapter on the sex instinct. The work is that of an original thinker, and it has been successful in stimulating a good deal of discussion, and it has undoubtedly exerted a considerable influence upon contemporary psychological thought.

The aim of the author is indicated in the introduction. He wishes to present psychology—in a living and practical form—from a standpoint which may serve as a firm foundation for the study of the various social sciences. It is obvious that for these latter to be of any value, they must be based upon an adequate knowledge of the working of the human mind. Unfortunately, however, in some instances elaborate systems of philosophy have been erected upon entirely false psychological assumptions, and in others the writers have made the frank avowal that no knowledge of psychology is necessary for an understanding of these subjects. This indifference towards, or ignorance of, psychology has been undoubtedly in some measure due to the academic and lifeless treatment of the subject in the past, so that the current literature has been of but little assistance to students of the allied sciences. The mere classification of conscious states throws but little light on those social sciences which deal with human conduct, in so far as such a method largely ignores the ultimate motives by which such conduct is determined. Dr. McDougall urges that for psychology to attain the position of a positive science it should not be purely introspective and descriptive, but it must be an “evolutionary natural history of the mind,” and it must, above all, deal with those innate fundamental tendencies of the mind which regulate human activities.

The main thesis of the author, a thesis vigorously and convincingly maintained throughout the book, is that human conduct is determined by innate conative dispositions (instincts), and that the intellect acts only in the service of these instincts as a means of attaining the ends to which they are directed. Such a thesis is, of course, directly opposed

to that intellectualism which regards man as an essentially reasoning and logical animal. This school would maintain that the intellect is an active tendency, an innate independent impulse in man, and practically an instinct itself. It is hardly the function of the reviewer to discuss the merits of these opposing schools of thought, but certainly those who are acquainted with modern developments in the sphere of morbid psychology would find considerable difficulty in the following teaching of intellectualism. It is interesting to note how morbid psychologists, approaching the subject from a different angle to Dr. McDougall, have been able to demonstrate to what a great extent thought, judgment, conduct, and belief, in both normal and abnormal persons, are controlled by primitive undercurrents of feeling of which they are entirely unconscious.

The chapters devoted to a consideration of the nature of instincts, and their classification, are particularly clear, and the author presents the subject from an original point of view, which is a marked advance on that found in most discussions upon it. Instinct is regarded by most writers as an innate tendency to certain kinds of action. Dr. McDougall, however, thinks that instincts are more than this; he regards every instinctive action as the outcome of a distinctly mental process which includes, like every other mental process, cognitive, conative, and affective elements. An emotion is no more than the affective side of the instinctive process, and each instinct has a specific emotion—primary emotion—as, for instance, the instinct of flight and the emotion of fear. This threefold treatment of instincts renders the subject free from confusion and ambiguity. The relation between instinct and emotion had not previously been stated in this explicit manner. Even James, who recognises the intimate relation between the two conditions, is somewhat perplexing as to the exact connection between the two. He says: "Emotions, however, fall short of instincts, in that the emotional reaction terminates in the subject's own body, whilst the instinctive reaction is apt to go farther, and enter into practical relations with the existing object." Thus the student gains a vague opinion that an emotion is almost an instinct, but not quite. This clear definition of the nucleus which determines conduct is important, as it enables the reader to follow its development without difficulty. The cognitive aspect expands into the developed intellect, the primitive conative impulse exhibits itself in increasing complexities of conduct, and the emotions develop into organised systems or sentiments.

Having defined and enumerated the various instincts, consideration is given to certain innate tendencies which, though of great importance for social life, cannot properly be classed as instincts, as their modes of action are of a varied character and are not directed towards any specific ends. The most important of these non-specific tendencies are sympathy, suggestion, and imitation,—processes of special importance to social life as they contribute so largely to the formation of the collective mind of organised society. This question of collective mental processes is discussed more fully in the second part of the book. The theme is difficult and elusive, but one of great interest and importance. The present epoch should afford abundant material for a detailed

study of this question. The notion of a national consciousness, implying the existence of a national will to pursue common ideals, has now presented itself, as never before, in a particularly clear-cut manner. One may, perhaps, hope that Dr. McDougall, who is so prominently associated with the theory of the "Collective Mind," may at some future date enlarge on this notion with special reference to antagonisms of national minds.

The remaining chapters of Part I are devoted to a study of the development of these primitive instincts into more complex forms. The author traces the organisation of emotional dispositions into sentiments, and demonstrates the importance of these for the character and conduct of individuals and societies. He next passes to a consideration of the growth of self-consciousness, tracing the effect of the social environment upon instinctive conduct, how it becomes modified into conduct regulated by notions of rewards and punishments, then conduct controlled by anticipation of social praise and blame, and lastly conduct based on a personal ideal of right and wrong. Finally he presents the question of volition in an original and striking form.

The second part is devoted to a consideration of the principal ways in which the instincts play their part in shaping the social life, and in determining the forms of institutions and of social organisations. These chapters deal with problems of vital importance to social life of the present day. As an instance, the section devoted to the reproductive and parental instincts may be mentioned, in which the writer deals with the weakening of these instincts by increased culture and the habit of independent thought and action. This and other questions are dealt with in an illuminating and instructive manner which merits the attention of all those interested in social sciences, either from a practical or an academic standpoint.

In the first supplementary chapter the author expresses in a more explicit form the theory of action which underlies his exposition of instincts and their development, and he combats the theory of psychological hedonism upon which the Utilitarian system of ethics has been founded. He thus develops his main thesis that conduct is not determined by the motive of avoiding pain and increasing pleasure, but, rather, springs from primary tendencies rooted in man, and in the remote ancestry of the race.

The chapter on the sex instinct will be read with interest in view of the prominence which has recently been given to this subject. It contains a criticism of Freud's sexual theory.

Altogether this book is the work of an acute and original thinker. The subject is one of considerable interest and importance to the psychiatrist, and its treatment in this volume might well form the groundwork for a study of the problems of mental disorder. Instances, indeed, might actually be cited in which the application of Dr. McDougall's conceptions have been productive of interesting studies in individual cases of insanity.

H. D.

The Sex Complex. By W. BLAIR BELL, B.S., M.D. London: Baillière, 1916. Pp. 233, with 50 Plates. Demy 8vo. Price 12s. 6d. net.

In the sub-title this volume is described as "A Study of the Relationships of the Internal Secretions to the Female Characteristics and Functions in Health and Disease." Professor Blair Bell has here sought to bring together, in a more or less coherent form, those investigations of himself and other workers bearing on the same point, which seem to demonstrate that the reproductive functions are controlled by all the organs of internal secretion acting in conjunction, in such a way that the existence is indicated of a genital system, or, as the author terms it, a "sex complex." In the past the ovaries have been regarded as the plastic agents of femininity. We must now regard them, the author insists, as part of a system to which most, if not all, the other endocritic glands belong, these latter being of equal reproductive importance with the ovaries themselves. We also have to realise that the genital influence of the endocritic glands is not only on the anatomical and physiological integrity of the uterus, but also on the general metabolism, and so ultimately on the psychology, of the individual. The same principles apply also to masculinity, although in this field they are only incidentally discussed in the present volume.

The volume is divided into two parts, the first mainly physiological and morphological, and the second pathological. In the first are considered in order the ovaries, the thyroid, the parathyroids, the pineal, the pituitary, the thymus, the suprarenals, the pancreas, and the mammary glands. The last, indeed, are dismissed as not true organs of internal secretion, except in the sense that "every cell in the body should be considered to be an organ of internal secretion," and something is done to clear up the puzzling and contradictory theories which have been put forward to explain the secretion of milk by the simple suggestion that we are in the presence merely of a redirection of maternal elements from the placenta to the breasts, which have been previously "sensitised" by a variety of stimulating agents, hormonal and other.

As regards the correlation of the internal secretions in their genital functions, the author concludes that the secretions of the ovaries have no direct influence on the general metabolism, but that they have a highly important function in keeping the other members of the endocritic system in touch with the necessities of the reproductive situation. The rest of the endocritic system is related to the genital function in various ways, some glands (thyroid, pituitary and suprarenals) influencing the development, integrity, and activity of the genitalia, others (thymus and possibly pineal) appearing to prevent sexual precocity. Further, all the endocritic organs, acting in harmony, control the metabolism in response to the necessities of the genital functions, and in addition adapt the whole organism to the situation, and regulate the secondary characteristics, physical and psychic, to the needs of the individual. But if the reproductive organs are removed or atrophy, the rest of the endocritic system loses its genital functions, and, contrariwise, insufficiency of the thyroid, pituitary or suprarenals may cause the genital functions to cease.

After the summing up at the end of Part I, a chapter on "Psychological Characteristics" is inserted. This has somewhat the appearance of a "foreign body" in the volume. No doubt the internal secretions have a highly important bearing on the psychic condition, but knowledge is still very imperfect and fragmentary. There are, indeed, a few points to bring forward, such as the influence of the thyroid in increasing mental energy, and the action of excessive secretion of calcium salts in lessening mental equanimity; but for the most part the author is here reduced to vague generalities, and many of these doubtful. He abandons, indeed, the judicially scientific attitude of his earlier chapters, and his confidence grows in this unfamiliar field as his knowledge diminishes; such generalisations as that modern women, in contrast to men, are more altruistic than primitive, are altogether hazardous. Finding that he has so little to say about women's psychology, the author takes a further leap and discusses their social sphere. He scarcely seems to realise the importance of the paragraph in which he effects this transfer. It is a somewhat illogical and incoherent passage (p. 114), which begins by stating that "competitive work"—evidently meaning industry—being "strictly speaking an evolutionary form of the hunter's craft," is injurious to women's finer psychical functions, goes on to assert that genius cannot possibly occur in women, and ends by stating that more latitude is required in the definition of sex. It would need some pages to deal with all the erroneous and misleading assertions in this paragraph, but it may suffice to remark that (1) so far from the industries being a form of hunting and pertaining to men, the most usual primitive rule is in very diverse parts of the globe that, while the men fight and hunt, the women alone are concerned with the industries, even agriculture and house-building; (2) since it is generally accepted that genius may sometimes occur in women it is idle to make an arbitrary statement to the contrary without an analysis of genius, and a careful investigation of the alleged cases; and that (3) if we accept the author's wider latitude in defining sex, if even the gonads are not essential, if the most various masculine traits may appear in a "true woman," it would be very suprising, even *ex hypothesi*, if genius were not sometimes to appear in women. The author has failed to realise that the social and psychic sphere of women is determined by a number of biological factors, and not exclusively by the very imperfectly known endocritic glands.

Part II deals mainly with derangements of development of the reproductive organs, and with the various disturbances of the internal secretions in their effects on characteristics and functions. In discussing hermaphroditism it is pointed out that so-called "true hermaphroditism" in man (with the occurrence of ovo-testes) is better termed "glandular partial hermaphroditism," and the author fully describes a case of his own, one of the three or four definite cases so far known. The different balance of the internal secretions in the sexes is well illustrated by the fact, to which the author calls attention, that in boys sexual precocity may be produced by neoplasms and hyperplasia in the suprarenal cortex, testes, pineal, and possibly pituitary bodies, while in girls such precocity is nearly always produced by ovarian tumours and hyperplasia; changes in the suprarenal cortex, pineal, and pituitary bodies, which in boys pro-

duce precocity, in girls producing masculinity. The author reasonably protests against the operation of oöphorectomy before some attempt has been made "to gauge the degrees of femininity and ovarian activity" in the woman, as it is probably only in the cases in which these are below the average standard that the operation is little likely to produce serious metabolic disturbance.

The second part of the book concludes with a short section on "Sexual Psychoses," which the author begins with a reproof to alienists for failing to grasp the fact, "that has always been staring them in the face," that insanity may depend on the state of the internal secretions. It is unpleasant to be stared at by hypothetical secretions, and it is to be hoped that Professor Blair Bell may soon be able to isolate the ovarian secretion to which he attributes so much influence. In the meanwhile the assumptions here made may suggest various considerations to the hesitating alienist. The author takes for granted that excessive or defective sexual feeling, leading to various psychic anomalies, is entirely a matter of excess or lack of "ovarian secretion." But clinical evidence in all countries shows that oöphorectomy in a large proportion of cases leaves the sexual feelings intact, or even increases them, and as our author insists that the ovaries are only one member of the sex complex, that seems to be the natural result which we should expect to flow from his own premises, even when we put aside all that may be said for a cerebro-nervous factor.

The psychological and psychiatric sections form but a subsidiary portion of this interesting work. It embodies the investigations of a recognised authority in his own field, and will be found full of help and suggestion by the workers in many other fields.

HAVELOCK ELLIS.

The Theory of Psychoanalysis. By C. S. JUNG. New York: Nervous and Mental Diseases Publishing Co., 1915. Pp. 135.

To a number of the readers of this Journal the writings of Freud are for many reasons distasteful. Their scientific training causes them to refuse to accept theories stated with little proof, and, even if the attempt be made to keep as open a mind as possible, their common sense rebels against some of the sexual doctrines he promulgates. But when they turn from the literature of the master to that of his disciples there is disgust. These out-Herod Herod, no doubt seeking a cheap notoriety by their unbridled licence.

The work under review is, however, in a different class, and it is interesting to psychiatrists for several reasons. First, Jung has studied the insane; secondly, he does not dogmatise, but condescends to give the reader a closely reasoned argument; and thirdly, though he acknowledges the inspiration received from Freud he is no blind follower of his. In fact, in regard to some of the most important doctrines of psychoanalysis he is unorthodox. In the opening chapters time after time he praises several of the wonderful discoveries of the master (Freud), then discusses them, and finally winds up by proving how untenable they are. It makes one think irresistibly of setting up a ninepin only to knock it down shortly afterwards. Then, again, the "censor" or "censure" is

not once mentioned. There is a sense of loss in the absence of this old friend from Freudian literature.

In the first chapter the theory that hysteria has its roots in the so-called traumata or shocks of earliest childhood is discussed, and it is stated that this conception was given up fifteen years ago and replaced by the hypothesis of "repression."

By the word "repression" is understood the psychic mechanism of the re-transportation of a conscious thought into the unconscious sphere. Chapter II deals with infantile sexuality, and Jung gives the reasons which compel him to disagree with Freud's statement that the sucking of an infant is a sexual act.

In Chapter III Jung discusses his theory of the "libido." He conceives of the libido as vital energy, and compares his views with the theory of conservation of energy in the physical world. He does not agree with Freud in restricting the libido to sexual matters. Those who have not followed elsewhere Jung's writings on the libido may be interested in the following quotations: "I maintain that the conception of libido with which we are working is not only not concrete or known, but is an unknown X, a conceptual image, a token, and no more real than the energy in the conceptual world of the physicist." . . . "We conceive libido now simply as energy, so we are in the position to figure the manifold processes as forms of energy." "We term libido that energy which manifests itself by vital processes, which is subjectively perceived as aspiration, longing and striving." . . . "In early childhood we find libido at first wholly in the form of the instinct of nutrition providing for the development of the body. As the body develops there open up successively new spheres of influence for the libido. The last, and, from its functional significance, most overpowering sphere of influence is sexuality, which at first seems very closely connected with the function of nutrition."

The next chapter states that in many cases of neurosis the libido lingers while the individual develops. "In this way the foundation is laid for the dissociation of the personality, and thereby to that conflict which is the real basis of the neuroses."

The conclusion of this chapter treats of unconscious phantasy, which leads to a digression on the unconscious which is dealt with in the next chapter. This is followed by a review of dream analysis, and the association experiment originally introduced into psychoanalysis by Jung. Descriptions of the Oedipus and Electra complexes are then given. The author next discusses the regression of the libido, a subject upon which he lays considerable stress. "The utilisation of reminiscences to put on the stage any illness or apparent ætiology is called a regression of the libido." He borrows from Freud the illustration that when a stream is dammed in its course the rising waters make use of old channels long disused. Similarly the libido, when it meets an obstacle, may regress into infantile paths. The ætiology of the neuroses is to be found in the actual present. Failure of adaptation and primary sensitiveness also play a part.

The therapeutics consists in freeing the patient from his phantasies, thus bringing him back to reality. This can be done only by raising the phantasies and the accompanying libido into daylight.

A case of neurosis in a girl, æt. 11, and the psychoanalysis which resulted in recovery, is given as an example.

Such, then, are the brief outlines of the *Theory of Psychoanalysis*. Literature of this kind is difficult to epitomise, as the manner in which most Freudians express themselves is diffuse, and the meaning is not always quite clear. It would assist comprehension if authors were to deign to summarise their conclusions at the end of each chapter. More cases by way of illustration would also be helpful. Three cases are given in this book, for which thanks must be recorded, but more would be acceptable. It would also be a relief if the unbeliever were to be left severely alone. Jung deems it his duty to deal faithfully with him, but such diversions are apt to draw the attention from the main argument. These, after all, are minor matters, and the *Theory of Psychoanalysis* will confirm the high place Jung has taken in the new school of thought.

R. H. STEEN.

Part III.—Epitome of Current Literature.

1. Psychology and Psychopathology.

The Study of History from a Psycho-pathological Point of View [*La Psycho-pathologie Historique*]. (*Revue Philosophique*, February, 1916.) *Louis Proal*.

In this erudite article the author points out that Brunetière is wrong, when, in his study of *La Pathologie Mentale des Rois de France*, he states that Auguste Brachet invented a new science, having for its object the explaining of historical facts by biology and pathology. This method of studying history is almost as old as history itself, and the author supports this view by a formidable array of facts.

Les Régicides, the work of Dr. Régis, the learned professor of the Bordeaux School of Medicine, is comparatively recent; so is that of Dr. Laborde on the Commune of 1871. Between 1836 and 1859, Lélut, Littré, and Moreau de Tours published books on historical psychology. The historian, Michelet, in his writings, particularly in *La Sorcière* and in *L'Histoire de la Révolution*, has indicated the influence which physiological and pathological causes exercise on the course of events. The pathology of the French Revolution has been especially studied by Taine, who was a member of *La Société de Psychologie Physiologique*, and had been initiated into the study of psychiatry by his uncle, the eminent alienist, Dr. Baillargat.

After having referred to the writings of Montesquieu and Voltaire, the author proceeds to demonstrate that the ancients also studied history from a psychological point of view. He shows that Plutarch and Tacitus analyse the passions of crowds and assemblies as thoroughly as Taine has done, and that both these classical authors acknowledge the species of intoxication which follows the acquirement of supreme power. Further, Plutarch realises the evil effect of fear upon the

judgment and even on the memory ; and he sees as clearly as modern writers that anger is a feebleness of the mind.

The author is fully alive to the value of this method of studying history, but he sees that it is beset with many pitfalls. He says : " This application of psychology and mental pathology to history presents many difficulties, for it requires various methods and extensive knowledge, the criticism of texts, and the clinical study of mental diseases. So the essays on historical pathology which have been attempted are not all free from exaggerations and errors."

The psychological historian must be versed in the laws of evidence, and adroit in their application to given cases, for imagination plays a part in the account which even an honest witness gives of an event, leading him " to enlarge, embellish, or diminish it."

The point of view changes with the nationality of the chronicler. It changes also with the flight of time, for, as Voltaire says, " the same nation at the end of twenty years has no longer the same ideas that it had on the same event or on the same person."

Another cause of uncertainty is the historian's state of mind. " Not only the contemporary witnesses, who relate the facts, do not all see them with the same eyes, and consequently they interpret them in different ways, according to their mental bias, their education, their profession, and their political and religious opinions ; but the historians themselves study the past with their preoccupations of the present. The freethinker and the religious man, the democrat and the conservative cannot arrive at the same judgment on the events of the past." Voltaire's blind hatred of Christianity deducts from the value of his criticism ; Taine's dislike of the *Ancien Régime* distorts his views on the causes of the French Revolution.

But the greatest difficulty of all is that the would-be psychological historians allow themselves to be carried away by their own theories. For example, Moreau de Tours has accepted almost any fable which fitted in with his hypotheses. " Believing that he had discovered an explanation of genius in a pathological state of the nervous system, he mixes with his clinical observations doubtful anecdotes and unproved or badly interpreted little stories, which he has borrowed from historical novels." The evil of such a method is far reaching. Lombroso, without proper examination, accepts the stories which he finds in the works of Moreau de Tours, and proceeds to argue from them that genius is a form of epilepsy.

Louis Proal's paper is not only interesting but useful. It strikes a note of warning, which was never more needed than at the present day, when we are so much under the influence of German thought, for it is characteristic of the Teutonic mind to care little about the truth of the premises so long as the deductions appear to be logical.

J. BARFIELD ADAMS.

Do Psychological Phenomena exist in the Vegetable World? [Existe-t-il des Phénomènes Psychologiques dans les Végétaux?]. (Revue Philosophique, February, 1916.). C. Acqua.

This question, the author says, cannot be treated from a theoretic or metaphysical point of view ; it ought to be dealt with, on the contrary,

by the positive method of observation and experience. One has been taught that psychological life is bound up with the presence of a nervous system. As we descend the zoological scale the nervous system gradually simplifies its structure and finally disappears. No one has demonstrated with certainty the presence of nervous substance in the protozoa. Are we, therefore, to conclude that there is no psychological life in these simple animals? The author considers that the continuity, which in zoology binds the most simple phenomena to the most complex, leads us to think that even among the infusoria there may be rudimentary psychological phenomena.

But there is no trace of a nervous system in vegetables. Are we to conclude, therefore, that they have no psychological life? It is admitted that certain agents, such as weight, light, etc., provoke the reaction of movement among vegetables. Without being able to admit the existence of an organ which accomplishes, even embryonically, a function analogous to that of a central (nervous) organ among the animals, one can distinguish the zones of the reception of the exciting cause, the zones of conduction, and the zones where the reaction takes place. At the extremity of the root there is an excitable zone, the geotropism and hydrotropism of which are the proof of its existence. At the extremity of the stem there is another excitable zone with its characteristic heliotropism.

The compound leaves of certain plants (one presumes that the author considers the parts of the flower as being morphologically analogous to leaves, and speaks accordingly) open during the day, and close during the night, these movements being provoked by light. But when these plants are kept in the dark, these movements continue at the same hours for a certain time, and after a while cease completely. This the author deems to be a phenomenon of memory, the plant recollecting the stimulus of light and performing the movements even when the stimulus is no longer felt.

Thus the author demonstrates in the vegetable world the existence of differentiation (geotropism, heliotropism, etc.) and memory, the two primary attributes of intellect.

He further points out that the mobile ciliated spore of the *algæ* reacts in the same fashion to external agents as the ciliated cell in the animal kingdom. But while in the case of the animal there is evolution and a growing complication of the functions of psychic life, the vegetable world presents neither this evolution nor this complication. An inferior sensibility or irritability is common to animals and vegetables, and irritability may be regarded as a function, though a very inferior one it is true, of psychological life. From this point of view, one may admit with the author that psychological phenomena exist in the vegetable world.

J. BARFIELD ADAMS.

The Results of a Questionary on Antipathy [I Risultati del Questionario sull Antipatia]. (Psiche, October-December, 1915.) De Sarlo and Fanciulli.

Questions were circulated by an Italian psychological society among psychologists, professors, and others concerning antipathy, its relation to other antagonistic states, its description and analysis, its various

forms, its course and transformations. Something over a hundred replies were received, and many are here reproduced. They are often interesting and suggestive, but, as might be expected, sometimes contradictory. Gambara and others consider antipathy fundamental and instinctive. Stepanoff, on the other hand, who regards antipathy as chronic opposition, argues that acute opposition arises earlier than the chronic form, which is not known in young children, and presupposes so considerable a social education that it is not one of the first even of chronic psychic states. Assagioli regards it as a reaction of defence, derived from the instinct of conservation, and not easily distinguished from other states of opposition. Foà, however, believes that the oppositional states are easily determined, and are aversion, hate, repugnance, and antipathy; he regards antipathy as fundamental and primitive. Boncinelli and others believe that antipathy is simply a complex result of many mental states, and that it has no special function, while Vacca regards it as a purely artificial conception, and mainly negative.

The authors of the report discuss the question of justified and unjustified antipathies, and suggest that, while the apparent motives and causes are not always justified, there may be a form of repulsion having its ultimate foundation in inherent physico-chemical differences between individuals, with attractions and repulsions which may have their reflex in consciousness and psychic conduct.

HAVELOCK ELLIS.

A Contribution to the Study of Epilepsia tarda, or Senile Epilepsy, and of Arteriosclerotic Dementia [Contributo allo studio della epilessia tarda e della demenza arteriosclerotica]. (*Rivista di Patologia nervosa e mentale*, December, 1914.) Alberto Ziveri.

The term, *epilepsia tarda*, is applied to the epileptic phenomena occurring in advanced age. A few authors distinguish between *epilepsia tarda* and senile epilepsy, understanding by the first that form of the disease which is said to appear about the thirtieth year, and by the second that which occurs after 60 years of age.

Epilepsy occurring in later life is almost always due to primary affections of the nervous system, as neoplasms, syphilis, parasites, alcoholism, arteriosclerosis, etc.—arteriosclerosis being the most common cause. Some writers, without absolutely denying the possibility of the late appearance of essential epilepsy, point out that the disease may have been previously present without causing noticeable disturbances, or the symptoms from their slowness, or from occurring at night, may have been overlooked.

The author, Dr. Ziveri, records the following case as illustrating both arteriosclerotic epilepsy and arteriosclerotic dementia.

Teresa, peasant woman, æt. 73, married, four children, three of whom are living, has suffered from much destitution, and appears to have had symptoms of pellagra. No signs of mental disease until two years ago, when she began to have epileptiform convulsions (two a month), which were followed by psychic disturbances. Afterwards patient suffered from deafness, confusion, disorder of ideas, and possibly

from delusions. Later, there were impulses to wandering about, and attempts at suicide. Admitted March 6th, 1914. Physically: Arthritis deformans of fingers; peripheral arteries hard and tortuous; cardiac sounds accentuated, especially the first; blood-pressure (Riva-Rocci) 145 mm.; pupils myotic, react feebly; knee-jerks well marked. Mentally: Is not restless, but only a little irritable and talkative; replies to questions, but does not pay much attention; knows her own name and country, but says that her age is 25 years, and that she has a son who is either 20 or 25 years old.

March 7th: Completely confused; fell out of bed; walks about without any object; when questioned replies with a string of words without any sense.

March 19th: Three attacks of epilepsy. Afterwards very confused.

Patient gradually became mentally weaker, until on April 26th it was noted that dementia was complete. Bed-sores had now appeared.

May 14th: One epileptic attack.

May 29th: Two epileptic attacks.

June 6th: Bed-sores very extensive. State of progressive marasmus. The patient has been unable to swallow for the last two days. Died at 4.45.

Post-mortem examination of body six hours after death. Weight of brain and meninges gr. 1,150. On section of brain, several moderate-sized hæmorrhagic foci were found, one in the second left frontal convolution, another in the left orbital, two others in the right ascending parietal, and one in the left ascending parietal. These were all in the white substance of the convolutions.

Everywhere in the cortex there were punctiform and miliary hæmorrhages, varying in size from the point to the head of a pin.

The basal arteries and the smaller branches of those of the cerebrum showed signs of atheromatous degeneration.

Heart.—Slight hypertrophy of left ventricle. Mitral valve with nodules of retraction. Aorta and aortic valves show slight signs of atheroma. Coronary arteries tortuous.

Liver.—Commencing cirrhosis.

Lungs.—Right, slight pleuritic adhesions of an ancient date. Left, two superficial abscesses at base of inferior lobe.

Kidneys.—Left, small urinary cysts. Right, numerous confluent abscesses occupying two-thirds of kidney substance.

Microscopic examination: Liver.—Slight pigmentary infiltration of hepatic cells. Commencing perivascular cirrhosis.

Kidneys.—Left, slight fatty degeneration in a few of the tubules. Right, intense fatty degeneration of all the tubules around the abscesses. Fatty degeneration of the glomerular epithelium.

Cerebrum.—Degeneration of all the cortical cells (method of Nissl). Around the punctiform hæmorrhages the nerve cells have assumed elongated and curved forms—the concavity being towards the hæmorrhage—evidently due to the pressure of the extravasated blood. At a little distance from the hæmorrhage the cells preserve their normal form. It is observed (method of Bielschowski) that in places the nerve-fibres are in fragments.

The fibrillary alteration of Alzheimer was only found in the pyramidal cells of the *cornu ammonis*, and there very rarely.

There was proliferation of the cells of the neuroglia.

Many of the smaller vessels presented aneurismal dilations.

A few Redlich-Fischer plaques (*piastres*), in an initial state, were found in the *cornu ammonis* and in the frontal convolutions.

Summing up the clinical and histological points of the case, the author points out that on admission the patient presented a rather advanced state of dementia—defective orientation, loss of memory and of the power of fixing attention, and a reduction of the mental field. Neither before nor after admission were there any apoplectic symptoms. Both before (but only during two years) and after admission there were epileptiform attacks. These were general, with complete loss of consciousness. They did not last long, but were followed by a marked state of confusion. There was a certain degree of arterial hypertension, the arteries were slightly hardened, but there were no important urinary symptoms (the abscesses in the right kidney and at the base of the left lung were assumed to be due to purulent infection from the bed-sores).

From the age and the progressive mental enfeeblement, the diagnosis, during life, was senile dementia, complicated by cerebral arteriosclerosis, as evidenced by the slight degree of peripheral arteriosclerosis and the epileptiform attacks. The past history negated the idea of essential epilepsy, and there were no signs of alcoholism, syphilis, or endocranial neoplasms. The absence of apoplectic attacks led to the conclusion that the cerebral arteriosclerosis was slight.

Pure senile dementia, the author points out, is very rare. It is so constantly complicated with cerebral arteriosclerosis that the majority of authors regard them as one and the same disease. Alzheimer and his school, however, distinguish between the two forms. In pure senile dementia there is the presence and the great diffusion of the plaques (*piastres*) of Redlich-Fischer, and the fibrillary alteration of the nerve cells described by Alzheimer, while the vascular lesions are either absent or very limited. In arteriosclerotic dementia, on the other hand, the vascular lesions, with all their clinical consequences, are much in evidence, while the formation of the *piastres* of Redlich-Fischer and the fibrillary lesions of Alzheimer are absent or only commencing.

Histological researches, the author says, have urged on the clinical study of these diseases, and to-day we seem to have made some progress in this chapter of mental pathology. Arteriosclerotic dementia may be divided into two principal types. To the first belong those cases with well-marked symptoms of cerebral hæmorrhage; to the second those characterised by small emboli and small but numerous hæmorrhages. Whilst the first type is easy to diagnose, the second presents a picture very analogous to that of pure senile dementia; indeed, it seems impossible in some cases to distinguish between the two forms of disease during life, and only histological examination can give the answer to the question.

Perhaps the most important part of Dr. Ziveri's paper is the report of the microscopical examination of the brain tissues. A very accurate account is given of the technique which has been employed, and the

illustrations, both in black and white and in colour, especially the latter, are clear.

The most interesting point about the case is the absence of apoplectic symptoms, in spite of the *post-mortem* evidence of hæmorrhage into the brain substance. One could have wished that the author had referred to the part played possibly by the numerous punctiform and miliary hæmorrhages in the cortex in the production of the epileptiform symptoms.

J. BARFIELD ADAMS.

Nomadism, or the Wandering Impulse, with Special Reference to Heredity. (Carnegie Institution of Washington, 1915.) Davonport, C. B.

This is the second of the author's studies on the "feebly inhibited," and in the preface he justifies the use of that term, on the ground that, while the term "mind" could doubtless be stretched to cover the emotional phenomena he is dealing with, it seems best to consider the hereditary basis of the emotions separately. "The chief problem in administering society is that of disordered conduct; conduct is controlled by emotions, and the quality of the emotions is strongly tinged by the hereditary constitution."

There are numerous varieties of the phenomena here dealt with, from racial nomadism, through the professional tramp, to the pathological fugue. The author selects "nomadism" as the best general term, largely because it has a racial connotation, for "from a racial point of view all hereditary characters are racial." That is to say that the author regards a tendency to wander as in some degree a normal tendency of man. In this connection he briefly discusses (1) the wandering instincts of the anthropoid apes; (2) the migratory tendencies of most primitive peoples; (3) the frequency of running away among children; and (4) the "love of adventure" in adolescence.

The study is based, like other studies in the same series, on family histories deposited in the Eugenics Record Office. They are of diverse origin, from some forty contributors, mostly trained workers. In no case was it expected that the pedigrees would be used to investigate nomadism, so that bias may be eliminated. In nearly a third of the cases there is no knowledge of the parents. All the histories, 100 in number, are here reproduced, and the results are also presented in a tabular form.

The most obvious fact revealed by the tables is that nomadism is chiefly found in the male sex; in the principal fraternities there are 168 male nomadics to 15 females. It is therefore argued that nomadism is a sex-linked trait, and that it follows the hereditary conditions prevailing in such cases. By hypothesis, therefore, the tendency should be traced through the maternal side, though the mother may not show the trait somatically, while it is usually shown in her father or her mother's father. Half the sons and none of the daughters of such a mother (if she married a normal man) show the nomadic tendency. If the mother is somatically nomadic, and the father not, all the sons are nomadic. If both parents are nomadic, then all the children of either sex are nomadic. If the father is nomadic, then half the sons and half the daughters are nomadic. When these hypo-

thetical results are compared to the actual results revealed by the tables it is found that there is a fair degree of concordance. There is, especially, no clear case of a nomadic daughter whose father is known to be non-nomadic.

It has been argued that nomadism may be regarded as an essentially male secondary sexual character, like the beard. The author seems justified in putting aside this hypothesis since nomadism is by no means confined to males. In certain matings daughters as well as sons are nomadic, so that the distribution of nomadic traits among the offspring may be regarded as a function of the particular mating.

Nomadism is frequently associated in the same family, and even the same individual, with abnormal mental and nervous states. Davenport finds "extraordinarily common" periodic psychoses with depression and frequently suicide, fits of temper, migraine, epilepsy, hysteria, sprees, and sexual outbreaks. All these states are marked by periodicity, and lead to the conclusion that nomadism is a trait that belongs especially to families subject to periodic emotional disturbances. Nomadism is not therefore to be regarded as a "symptom" or "equivalent" of epilepsy, hysteria, etc.; the relation is one of concomitancy. "The nomadic impulse is, in all the cases, one and the same unit character." Nomadism is associated with other sorts of periodic behaviour because we are concerned with an individual who belongs to a "race of periodics" whose inhibitions are from time to time paralysed. Nomads showing feeble-mindedness and dementia belong to a special class. They lack the inhibitory mechanism, so that their nomadism is no longer explosive but chronic, like that of the child or the chimpanzee.

HAVELOCK ELLIS.

2. Clinical Neurology and Psychiatry.

Inheritance of Temperament. (Publication 236 of the Carnegie Institution of Washington, 1915.) Davenport, C. B.

The author here seeks to analyse the distribution in families of temperament, as expressed in mood, and to test the hypothesis that it is dependent on heredity. Mood is divided into two main classes (as seen in manic depressive states): the hyperkinetic or exalted, and the hypokinetic or depressed. The hyperkinetic temperament is divided into two grades: a less developed called nervous (and sometimes sanguine), and a more developed called choleric. The hypokinetic temperament is likewise divided into two grades: a less developed called phlegmatic, and a more developed called melancholic. In some families there is a prevailing tendency to the first class of conditions, and in other families for the second class, while yet other families show a mixed state. How can we bring under one general scheme the inheritance of these various types of mood? After several trials the following hypothesis was selected to test. There is in the germplasm a factor *E*, which induces the more or less periodic occurrence of an excited condition (or an exceptionally strong reactivity to exciting conditions), and its absence *e*, which results in an absence of extreme excitability. There are also the factor *C*, which makes for normal

cheerfulness of mood, and its absence ϵ , which permits a more or less periodic depression. Moreover, these factors behave as though in different chromosomes, so that they are inherited independently of each other and may occur in any combination.

To test the hypothesis 89 family histories (with 146 sufficiently described matings and 629 offspring) were available, and the pedigree charts of all these families are reproduced. They were obtained independently of any hypothesis, and none were rejected as opposed to the hypothesis. The various kinds of matings and their inheritance are elaborately tabulated and discussed. It was found that the proportion of non-conformable cases is only 0.95 *per cent.* Of 135 offspring of a manic parent all were excitable but six. With neither parent excitable none of the children are excitable. With neither parent depressed the children rarely are. The children of one depressed and one not depressed parent are not depressed. Davenport holds that his tables strongly support the conclusion that there is a marriage selection against similar temperament, and a preference in mating for a dissimilar temperament.

A special investigation of suicide was made in this connection. Suicides mostly fall into the hyperkinetic or the hypokinetic group, to the former at least as often as to the latter. In the hyperkinetic cases a vivid idea appears, often of hallucinatory nature, and in the absence of inhibitions is reacted to. Most threats of suicide belong to this class; the strong emotion is present, there is violent action and violent language, but the inhibitions remain too strong. The hypokinetic are over-inhibited, but in them also suicide occurs, the mental anguish of insufficiency and unworthiness seeking relief in death. Many arterio-sclerotic cases ending in suicide belong here. The examination of forty mainly hyperkinetic families showed that the hyperkinetic disposition rarely skips a generation; it could frequently be traced through three generations, which is about as far as human memory extends. Out of the forty families, in eighteen parent and child both committed suicide. In hypokinetic cases the inheritance of the suicidal tendency is less clear because less easy to trace, and it is probable that arterio-sclerotic suicide, like arterio-sclerosis itself, tends to run in families. While hyperkinetics tend to use any method near at hand and often inadequate, like jumping out of a window or choking with string, hypokinetics adopt more deliberate and more effectual methods like shooting and hanging.

The author has some remarks on the bearing of his investigation on psychiatric doctrines. He is opposed to the tendency to regard mental troubles, whether organic or more especially functional, as "disease," and he deprecates the importance attached to diagnosis. Records show that a large proportion of cases do not fit into any main functional types, and it is not uncommon for a patient to be admitted three times in succession with a different diagnosis every time. "Now, where there is so much doubt as to how the 'diseases' are to be differentiated, it is fair to doubt if they are entities. The conclusion is forced upon one that we are dealing with complexes of behaviour, with syndromes." These so-called "diseases" may indicate an incompatibility with the highest requirements of society. "But these

requirements are, after all, rather narrow and rigid, and it would be strange if, amid the vast range of human characteristics, many combinations did not occur that are far from ideal." The classical dementia præcox shows a complex of traits that are separably not unknown in some degree among persons who pass for normal. Studies of inheritance point to the conclusion that "the functionally insane are mosaics of chance, accidental associations of socially undesirable hereditary traits. As a corollary it seems probable that the Kraepelinian or any other classification of the functionally insane is rather harmful than otherwise, since it distracts attention from the principal points, such as periodicity, temperament, inhibition, the destruction of neurones in the cerebrum, and the specific control of behaviour by internal secretions."

HAVELOCK ELLIS.

The Neurasthenic Element in Disease. (Glasgow Med. Journ., February, 1916.) Craig, James.

The author's object in this paper is to emphasise afresh the fact that neurasthenic symptoms are in some cases the result of underlying disease, organic or other. Half a dozen cases are narrated in illustration of the thesis. The author summarises his conclusions under four heads: (1) Since the early symptoms of disease are often remote from the organ really affected, it is necessary always to make observations away from the point to which the patient calls attention; (2) it is even yet more important to enter sympathetically into the patient's emotional attitude, in order to gain the knowledge that can only be acquired by tracing its multiform ramifications; (3) the acuteness of the neurasthenic symptoms is parallel to the gravity of the disease and on a different level from, for instance, the *spes phthisica*; (4) a very wide and broad view must be taken of the treatment.

HAVELOCK ELLIS.

The Pathogeny of Essential and Cerebral Epilepsy [*Pathogénie de quelques formes d'Epilepsie dites Epilepsie Essentielle et Epilepsie Cérébrale*]. (Nouvelle Iconographie de la Salpêtrière, December, 1915.) G. C. Bollen.

After an extensive series of observations, of which he gives particulars, the author concludes that essential epilepsy is neither caused by intestinal putrefactions (abnormal fermentations, etc.) nor by intoxication by purins, nor by retention of, hypersensibility to, or intoxication from chloride of sodium.

His experiments with the extracts of the ductless glands in the treatment of epilepsy give the following results. Extracts of the thymus, adrenals, pituitary body, liver, pancreas, testicles, and ovaries, separate or combined, have no effect, or very little, on the course of the disease. On the other hand, magnificent results were obtained by the administration of the combined extracts of the thyroid and parathyroid glands.

Seeing the probability that in the action of the secretions of the ductless glands the ferments play an important rôle, and that in the dry state these ferments may lose the whole or part of their activity, the author always employed fresh extracts in his experiments with the whole

series of glands mentioned above. Presuming also that the hydrochloric acid of the stomach exercised a similarly deleterious action on the ferments, he administered the extracts by the rectum.

A considerable number both of recent and chronic cases of epilepsy were cured by the administration by the rectum of the freshly prepared, combined extracts of the thyroid and parathyroid glands. In every case the bromide of potassium, which had been given previously, sometimes in large doses, was immediately stopped.

Among the epileptic patients subjected to this treatment a certain number were not benefited. These fell into two groups.

(1) Those suffering from primitive cerebral disease—internal hydrocephalus, tumour of brain, infantile cerebral paralysis, tumour of the pituitary gland, solitary tubercle, etc.—which was accompanied by epileptiform attacks.

(2) Those which presented no characteristics of primitive cerebral disease, and in which the clinical symptoms did not allow one to diagnose any other malady than epilepsy.

In this latter group it was possible almost always to prove that the patients had in their childhood suffered from convulsions, either spontaneous and accompanied by fever, or following upon infectious diseases such as typhus, pneumonia, scarlet fever, or even whooping cough or measles. The author considers that the epilepsy in these cases is consecutive to a diffuse inflammation of the brain (cortex), or of the dura mater, or both (chronic infantile meningo-encephalitis). To this form of epilepsy he applies the term cerebral epilepsy, confining the term, essential epilepsy, to cases in which there is no history of any past brain mischief, nor any *post-mortem* evidence of disease.

After reviewing at considerable length the various symptoms and physical signs, which *à priori* seem likely to aid in the differential diagnosis between cerebral and essential epilepsy as thus defined, the author comes to the conclusion that the two forms of the disease clinically resemble each other so closely that (excepting the action of the combined extracts of the thyroid and parathyroid glands) the only thing that during life can distinguish them is the past history.

The author then proceeds to review the evidence, which has been accumulated on the action of the interior secretion of the thyroid and parathyroid glands on the toxic products of metabolism, and he argues that when from any cause the influence of these glands is defective, the toxic products accumulate, and that epileptic attacks or explosions are efforts of the system to free itself from them. This is essential epilepsy.

In the case of cerebral epilepsy the thyroid and parathyroid glands may functionate normally, but the chronic meningitis or encephalitis so interferes with the circulation in the affected portions of the brain that the waste products accumulate locally and cause the epileptic attack, in the same way as in the essential form, in order to obtain relief from the toxic products.

The author sums up as follows :

(1) In the present state of science, essential epilepsy and cerebral epilepsy cannot, in the majority of cases, be clinically distinguished the one from the other.

(2) Cerebral epilepsy is produced by any disease of the meninges or of the cortex or deeper parts of the brain which, either by a general increase of the intra-cranial pressure, or by local processes of sclerosis, provokes troubles of the circulation in the cerebral cortex (venous hyperæmia).

(3) Essential epilepsy is a chronic auto-intoxication caused by the toxic products of alimentary decomposition and by the toxins proceeding from cellular metabolism, which, in consequence of the hypo-function of the thyroid and parathyroid glands, are insufficiently neutralised. As a consequence of hypo-thyroidism and hypo-parathyroidism, the secretion of the ferments of the intestinal tract and of the intermediary metabolism is very much diminished.

(4) In both cerebral and essential epilepsy the cerebral cortex, with its great affinity for numberless poisons of different origins, is slowly saturated with toxins. In essential epilepsy these toxins proceed from the metabolism of the whole organism and from the alimentation; in the cerebral form of the disease they come from the cerebral cortex itself, in which, consequent to the troubles of the (local) circulation, a lymphatic and venous back-wash is produced with an accumulation of the products of defective metabolism in the affected region.

(5) In all forms of epilepsy one must regard the attack as a reaction of the organism with the object of relieving itself of the toxins. The blood relieves itself of these toxins through the kidneys, lungs, and skin; later the cerebral cortex evacuates its share into the blood, which at that moment is deprived of toxins.

(6) In essential epilepsy the administration by the rectum of the fresh extracts of the thyroid and parathyroid glands, they being the organs with defective function, is sufficient to make the morbid phenomena of the disease disappear for ever.

This paper touches upon several points of great interest, but its principal value appears to be in the explanation that it offers of the disappointment which has been experienced in the administration of the dry thyroid extract by the mouth in cases of epilepsy.

J. BARFIELD ADAMS.

Nervous Debility (Débilité Nerveuse). (Nouvelle Iconographie de la Salpêtrière, December, 1915.) A. Austregesilo.

The author defines Nervous Debility as a diathesis, a constitutional state, or congenital predisposition, which is characterised by

- (1) The early onset of fatigue.
- (2) Irritability and instability.
- (3) Exaggerated emotionalism.
- (4) Suggestibility.
- (5) Rhythm and periodicity.
- (6) Prompt reaction to toxic agents.
- (7) Hereditary susceptibility to the action of toxic agents.
- (8) Vaso-motor and secretory reactions.
- (9) Debility of the gastro-intestinal apparatus.

The precocious onset of fatigue is the symptom most commonly met with among sufferers from nervous debility. It reveals itself in all spheres of work—mental, bodily, or visceral.

If the nerve cell be fatigued, two reactions manifest themselves, instability and irritability. The instability may be psychic, motor, or visceral, the first being the most common. As illustrating the psychic instability, the author points out that such patients have difficulty in fixing their attention, and can only do so for a short time. Motor instability shows itself in the muscles of the face—tendency to tics and other co-ordinated movements—and in the constant movements of the limbs and of the positions of the body.

Irritability is the constant result of the intoxication and fatigue of the nerve cells of the cerebral cortex, of the spinal cord, and of the sympathetic system. It manifests itself in outbursts of passion, ideas or emotions, in paræsthesias, neuralgias, or in frequent secretory troubles.

Exaggerated emotionalism is so constant a symptom among these patients that many authors regard it as the basis of neurasthenia. The phobias are a proof of this emotionalism. They generally appear to be a deviation of the natural instinct of self-preservation.

Having touched upon the vaso-motor reactions, and having dwelt at some length on the importance of the exaggerated sensibility of the digestive apparatus among these patients, the author passes on to the susceptibility which they manifest to the action of toxic agents.

Germes and poisons, he says, of no matter what origin, always seek the nervous system as the place where they can the most easily effect bio-chemical changes. The nerve cells of the sufferers from nervous debility have a hereditary susceptibility to the action of these agents. The son of an alcoholic is easily made drunk, delirious, or is thrown into convulsions, by a comparatively small dose of alcohol. The son of a syphilitic, who has escaped hereditary syphilis, has an accentuated tendency to nervous maladies, if he chances to contract the disease in question.

This remark of the author suggests a possible explanation of the fact that syphilis is not always followed by general paralysis. The son of parents untainted with syphilis may contract the disease, and yet escape general paralysis. The son of syphilitic parents, who becomes inoculated with the disease, will probably develop general paralysis, because, although he has never manifested the symptoms of hereditary syphilis, his tainted heredity has endowed him with "an accentuated tendency to nervous maladies."

In conclusion the author groups together three functional syndromes in his picture of nervous debility.

- (1) Neurasthenic reactions. (Neurasthenia.)
- (2) Hysterical or hysteroid reactions. (Hysteria.)
- (3) Convulsive or various motor reactions. (Epilepsy.)

In the first group the intoxicated nerve cell works lazily or abnormally, and the result is seen in irritability and precocious fatigue, and possibly in various anæsthesias, headaches, insomnia, etc.

In the second group the nervous disturbance is greater. Its essential character is suggestibility, and consequently the easy disintegration of the psychic personality of the sensitive, sensorial, motor, or visceral elements of the organism.

In the third group the reaction is stronger and affects the psychomotor sphere, manifesting itself by loss of consciousness and convulsions.

The nerve cell of the neurasthenic receives the toxin and works badly ; that of the hysteric is further disturbed in its function, but consciousness still commands psychic unity ; that of the epileptic receives the toxin, and its explosive reaction, with loss of consciousness, indicates the greater degree of the disturbance, and the easy disintegration of motor and psychic functions.

Alcohol, for example, according to the degree of its toxicity on the organism (I presume that the author means or includes the susceptibility of the nervous system to the action of the toxin), and according to the quantity, may cause alcoholic neurasthenia, alcoholic hysteria, or alcoholic epilepsy. *Mutatis mutandis* one may observe the same effects in the case of other exogenous or endogenous infections.

J. BARFIELD ADAMS.

On the Differential Diagnosis of Manic - Depressive Insanity and Dementia Præcox. (Glasg. Med. Journ., vol. lxxx., Sept. 1913, pp. 185-192.) R. M. Marshall, M.D., Senior Assistant, Royal Asylum, Gartnavel, Glasgow.

"The terms manic-depressive insanity and dementia præcox were used by Kraepelin to designate two disease entities, which he considered were between them responsible for most of the states of mental disorder usually gathered together under the title, the psychoses." The psychoses are something more than states of mental disorder, and something less than disease entities ; they lie between them. Excitement, depression, delirium, and stupor are states of mental disorder which may arise during the course of many diseases, general paralysis, hysteria, epilepsy, the cerebropathies, constitutional and infectious diseases ; but acute mania, acute melancholia, anergic stupor, delirious mania, are psychoses. They differ from a state of mental disorder in so far as they are self-sufficient, and are not the expression of an underlying disease ; moreover, they run a fairly definite course, ending either in recovery or in dementia. The classifications of the psychoses have been unsatisfactory, and none of them has met with general acceptance. The most satisfactory method is that formulated by Kraepelin : and, in the opinion of Dr. Marshall, he "has done for the psychoses what Erb did for the amyotrophies." He emphasised the importance of dementia as a termination of the psychoses, and gathered those which ended in dementia into one disease category, dementia præcox, and those which did not so end into another category, manic-depressive insanity. The fact that dementia occurred predicated an organic change in the brain, so that dementia præcox was an organic and manic-depressive a functional disease of the brain. Certain states of mental disorder are common to both conditions : yet there are symptoms which render it possible to distinguish between them. In dementia præcox there is "inco-ordination of the individual psychical processes" : manic-depressive insanity depends on "a change in the mutability of the individual psychical processes." Normal mentality results from the co-ordinated action of the emotional, intellectual, and volitional processes, and is characterised by a certain congruity of thought and conduct. If there is inco-ordination of these fundamental processes,

incongruity of thought and conduct results. The nature of the incongruity depends on the mental process mainly responsible for the incoordination. The symptoms may be for a time emotional, intellectual, or volitional.

Emotionally the change may be manifested by disordered response to ordinary stimuli: the response may be absent or perverted. When absent there is a "general numbing of the emotions"—indifference, apathy. When perverted there is produced an emotion opposite to the one which should be aroused. The reaction may be paradoxical; or two conflicting emotions may be aroused. Transitory and evanescent emotional outbursts may occur which may pass off harmlessly or may lead to serious assaults.

Intellectually the disturbance is shown by disorganisation of thought. There is a general failure of the ideational responses, resulting in poverty of ideas. Patients lack initiative and spontaneity. Their conversational powers are limited. There may be incoherence. Those influenced by hallucinations or delusions "may manifest the disorganisation of their thought only when speaking about them."

Volition.—The numbing of thought and feeling renders conduct stolid and stereotyped. The failure of the succession of thought and the perversion of the emotions lead to anti-social conduct, to echo-speaking, and echo-acting. There may be fantastic, affected, or capricious behaviour, grotesque antics and grimaces, coining new words, or negativism. Negativism is defined as a state wherein the patient "persistently shows an opposite response to excitants from his environment."

In manic-depressive insanity the cardinal symptoms depend on modification of the mutability of the individual psychical processes. In the maniacal state their mutability is increased; in the depressive state decreased. But "however greatly the mutability of the emotional, intellectual, and volitional processes is modified, they are perfectly coordinated, and the mental life as a whole shows a normal congruity."

There is greatly increased excitability, violent outbursts readily occur. Underlying all these is a constant emotion of self-appreciation, and this colours all the products of thought. There is flight of ideas. Volitional activity tends to be displaced by automatic freedom of action. The patient is constantly employed but never finishes any task he takes in hand.

In the depressed phase there is diminished response. Volition and cognition are impeded. Instead of self-appreciation there is self-abasement. Depression fades gradually into depressive stupor, in which the impediment of thought and volition is nearly absolute.

If hallucinations and delusions complicate the excitement and depression, states of confusion result, the maniacal origin of which may be revealed by the presence of impediment of will and cognition, or automatic freedom of action and the flight of ideas.

Dr. Marshall is of opinion that dementia præcox runs a fairly acute course, terminating in a permanent dementia, which may to a certain extent be made good by a process of compensation. There may be remissions during the course of the disease, the patient enjoying fairly normal mental life. Second attacks, although rare, undoubtedly occur

Manic-depressive insanity is characterised by recurrence, interchange, or intermingling of the essential features of the maniacal and the depressive states. The statement that dementia does not supervene must be qualified. Mental weakness is sometimes seen where the disease came on early in life, and where the periodic attacks were severe.

If there is unequivocal evidence of "intrapyschic ataxia" during a state of excitement, it denotes dementia præcox. Defect in the congruity of thought is pathognomonic of a dementing process. Conversely, the presence, in an unequivocal state, of automatic freedom of action and the flight of ideas, supported by the history of several previous attacks completely recovered from, are equally sure signs of the excitement being maniacal. But maniacal states may usher in dementia præcox and obscure the evidence of psychic ataxia; and only a presumptive diagnosis of manic-depressive can be made without a history of previous attacks. A further complication is that in dementia præcox there are also remissions. Negativism may also be simulated in certain cases of manic-depressive insanity.

Although extended observation is often requisite before a diagnosis can be made, Dr. Marshall is of opinion that by psycho-analysis the early dissociation in thought, premonitory of ultimate dementia, may be detected; and that another important diagnostic method is that which depends on a due appreciation of the somatic changes in dementia præcox.

HUBERT J. NORMAN.

3. Treatment of Insanity.

The Treatment of Cases of Mental Disorder in General Hospitals
(Reprinted from the *Boston Medical and Surgical Journal*, vol. clxx,
No. 17, pp. 637-642, April 23rd, 1914.) Philip Coombs Knapp,
A.M., M.D.

The author maintains the thesis that acute and borderland cases of mental disease can be received and temporarily cared for in general hospitals. He admits that mental patients are not looked upon with favour by the nursing staff or by the other patients, on account of—in many cases—their restless, noisy conduct. Yet almost all general hospitals must include at times among their inmates some patients who, in the course of treatment for such conditions as acute infections, accidents, etc., become turbulent and violent.

He reviews his experience, extending over four years, in dealing with patients who manifested some mental disturbance during their stay in the Boston City Hospital. Twenty beds were allotted for these patients. There was not, however, a special ward, but the patients were distributed in several wards. Excited patients were put in an open ward of eight beds, or in double rooms opening on a corridor. The doors were not locked, and access was free. About four hundred patients were admitted annually, chiefly adults. Patients exhibiting a variety of mental symptoms were thus treated; there were cases of alcoholism, epilepsy, general paresis, dementia præcox, manic-depressive insanity, senile dementia, etc. A considerable proportion of the patients were certifiably insane, and a number of them were eventually

certified. It was seldom found necessary to resort to any form of mechanical restraint ; occasionally this was applied in the shape of a sheet tied across the bed, or, very rarely, the camisole was used. Dr. Knapp believes that much of the restraint used in general hospitals is due to an inefficient and insufficient nursing staff. Restless patients often did well when side-pieces were put on the beds. The absence of mechanical restraint was not brought about by the excessive use of sedative drugs. Bromide and veronal were used in moderate doses in a good many cases, especially in alcoholism, but hyoscine, morphine, or chloral were seldom used. The occasional use of the wet pack, "forced feeding, absolute avoidance of alcohol in the alcoholic cases, a few moderate doses of bromide, and more or less persuasion" usually sufficed.

In his four years' experience there was no suicide, no patient escaped from the hospital, only very rarely from the ward, no patient seriously injured himself or others. The patients seldom claimed discharge because of illegal detention ; if anyone did so, and he was unfit to be sent out on account of his mental state, the matter was delayed until certification took place—if that procedure was deemed necessary.

Dr. Knapp is convinced that even without a special psychiatric pavilion or psychiatric wards, insane patients can be received and temporarily cared for in the open wards of a general hospital. In answer to the question as to what good can arise from dealing with mental cases by this method, he maintains that patients in whom the symptoms have appeared suddenly, or those who have fallen into the hands of the police, may be treated expeditiously, without legal formalities and without waiting to find the patient's friends ; or the patient may present obscure mental symptoms which make the mental state a fit object of inquiry, and he may be subjected to observation until a definite diagnosis can be made, and suitable provision for his future care arranged without any disturbing legal procedure. Again, it gives the relatives time to become gradually reconciled to the idea of certification. Finally, it allows of cases of short duration being treated in the general hospital until they are able to return home and can then obtain treatment as out-patients until recovery is complete, thus avoiding an official recognition of the stigma of having been insane. Dr. Knapp realises that much injustice is done to the patient in the matter of this stigma, while he admits that the fact of a previous attack of insanity renders it allowable for an employer, for example, to look with some suspicion upon an applicant who has been confined as a lunatic. "The employer is justified in doubting his efficiency as he would be in doubting the efficiency as a look-out man of the applicant who wore ten diopetre glasses." Yet the disability implied is often out of proportion to what in reality exists, and the patient is to that extent unduly hampered. The same question arises in regard to marriage : some will doubt whether a person, if once adjudged insane, "is a fit person to be joined in holy matrimony." If this person, who has suffered from some acute mental disease which does not impair his mentality afterwards or influence his future offspring, can be treated "without an official, legal recognition of his trouble, it may be of great advantage, a positive benefit to the patient and the community."

A general hospital is not adapted for the permanent treatment of the insane. "It lacks the opportunities for work, entertainment, exercise, out-of-door life, and recreation." On the other hand it has advantages. Rest in bed is one of the most important. There is also, unless he is very demented or confused, the atmosphere of physical sickness which should tend to convince the patient that he, too, is ill and give him insight into his own condition; and, though in some cases this may do harm, in others it may do good.

It is the duty of every large general hospital to provide accommodation for such cases. The mental patient has a claim to treatment therein just as have those suffering from other morbid conditions. The reception of such cases means some extra trouble, more nurses, and more anxiety for the staff. There are certain risks, but they are not very great. Every hospital for the insane has its escapes, its suicides, its acts of violence. The general hospital may expect them as well; but the benefits to the community outweigh them.

In conclusion Dr. Knapp remarks that it is not practicable to receive and care for such patients unless there is a special staff under the charge of a visiting neurologist familiar with mental diseases and their treatment. Something more is requisite than restraint while in the hospital and commitment at the earliest opportunity. The visiting physician must "have control of his patients and their treatment without interference from administrative officers, and must be alone responsible for the treatment, the stay in the hospital, restraint, and commitment. Only under such conditions can the reception and treatment of cases of mental disorder be of full benefit to the patient and the community."

HUBERT J. NORMAN.

4. Sociology.

The Dualism of Human Nature and its Social Conditions [*Le Dualisme de la Nature Humaine et ses Conditions Sociales*]. (*Revue Philosophique*, February, 1916.) Durkheim.

This article has for its object the more clearly defining one of the theses sustained by the author in his work, *Formes Élémentaires de la Vie Religieuse*, namely, the possibility of explaining scientifically the constitutional dualism of man. Religions have always recognised this quality, regarding man as formed of two beings radically different—the soul on the one side, the body on the other. Psychological analysis, in a sense, confirms this belief. There are sensations and sensual tendencies on the one side, thought and moral activity on the other.

After touching on the explanation of this dualism offered by empirical and idealistic monism respectively, and referring to the ontological explanation of Plato, whom he practically charges with begging the question, the author passes on to elaborate his own theory. Moral life is a constant antagonism between egoism and altruism, and consequently our psychic life has a double centre of gravity. Our sensations (and I suppose the author means our ideas of sensations) are individual, concern us alone, and are incommunicable; our thoughts (concepts) are social, and are the means by which we communicate with one

another. These thoughts (concepts), being collective, or rather being collective in origin, are invested from this fact with an enormous authority, individuals representing them to themselves under the form of moral forces, which dominate and sustain them. The author, therefore, considers that the dualism of man is a struggle between his individual appetites (egoism) and his social desires (altruism).

In spite of his criticism of Plato, the author appears to have himself drifted towards idealism. Something of his theory finds itself foreshadowed in the writings of Marsilio Ficino, one of the principal members of the *Accademia Platonica* of Florence in the days of Lorenzo de' Medici.

It must be admitted, however, that in demonstrating his theory, the author assists one to understand the emotion of sympathy, an emotion which has always been difficult of explanation.

J. BARFIELD ADAMS.

4. Asylum Reports.

London County Council, 1914.

The production of this report, without any decrease in particulars and details, is in itself a matter for some congratulation to Mr. Keene and those who help him. His office has been much depleted by the war, perhaps not more so than others relatively, but the huge bulk of returns and figures, for all of which his office is responsible, cannot be matched elsewhere.

There is but little increase in the bulk of the insanity of the area, any increase noted being chiefly in the asylum patients, those in the Metropolitan Asylums Board's care being nearly stationary.

Nearly 1,000 cases have to be provided for outside the Council's Asylums, and the Council finds great difficulty in arranging contracts now, the more so as the class of patients from whom selection has to be made do not come up to sample as required. The finishing of the eleventh asylum will therefore be a great easement, but labour troubles and the war have done much to hinder the realisation of the plans. The new house at Mistle, however, works very well and economically. Fifty male patients are housed at a cost for adaptation of £800, or £16 a bed, while the annual cost for rent, etc., is about £130.

The readmissions of those discharged as recovered still bear a heavy proportion to the discharges, 30 *per cent.* of those discharged in the previous nineteen years having returned. Nearly 12 *per cent.* of those discharged recovered in the same period have returned within twelve months of their discharge.

The Banstead Asylum, which was erected in 1877 to accommodate chronic patients only, is to be remodelled at a cost of £47,000 so as to allow of proper supervision and classification.

With regard to the Maudsley Hospital a curious administrative difficulty has arisen. The Council was of the opinion that the Medical Superintendent should not live on the estate but should be required to

find his own residence in the neighbourhood, but Section 276 of the Lunacy Act requires that the resident medical officer shall reside in the asylum. There is no room on the estate for his house and no immediately contiguous house can be leased, so the matter is hung up for Parliamentary emendation. When will this come? In the meantime Section 276 does offer a *pis aller*, in itself hateful but possibly justifiable as a temporary measure. It is lawful for the Secretary of State to authorise the Committee to appoint some other person than a medical officer to be Superintendent. The duties of a lay Superintendent are not nearly so extensive as those of a Medical Superintendent. But one doubts whether the original opinion of the Council is of sufficient importance to cause delay that must come from waiting on legislation, though we entirely support the contention that the medical officer should not be pinned down to residence on the estate.

The cost to maintenance for the year in respect of annuities amounted to £7,878, while the contributions of the staff came to £8,344. The relative figures for last year were £6,000 and £8,200. The credit margin seems to be disappearing rather more rapidly than was expected at the time the principle of pensions was being contended for.

The war has, as stated, made great calls on the staff. On March 31st, 1915, 538 members were serving with the forces, namely, 13 medical officers, 29 clerks, 496 attendants, workmen, and other employes. At the time of the report going to press the total had increased to 661, the casualties to date being 15 killed, 6 dead from wounds, 4 dead from other causes, 54 wounded, and 4 missing.

The usual liberality is shown in respect to these volunteers. Full pay, including value of emoluments, less separation allowance (if any), is accorded.

We note the following matters in the reports of the Medical Superintendents.

At *Banstead* lobar pneumonia towards the end of the year assumed an epidemic form, it being present at death in 17 male cases and 19 female. This was continued in the new year, 19 men and 23 women dying of a virulent form of this disorder in the first three months. Dysentery has also given much trouble, and caused the death of 10 men and 11 women, nearly 30 *per cent.* of the cases attacked dying from it.

At *Bexley* Dr. Stansfield notes that in 26·7 of the male first attack admissions acquired syphilis was assigned as the exciting cause, while it figured either as principal or contributory factor in 38 *per cent.* We are glad to see that the recovered cases with alcoholic ætiology are systematically visited by members of the British Women's Temperance Association.

One man who escaped joined the Army, and after a few weeks of turbulent behaviour was dismissed and recertified.

At *Cane Hill* Sir James Moody, who has since fallen out, notes the help that is given to probationary cases by the After-care Association, now that its rules have been altered. We wonder whether this change is universally known.

At *Claybury* Dr. Armstrong-Jones records the death of a male patient in a curious method. He fell forward in a syncopal attack at

meal-time and in spite of treatment died. *Post-mortem* a small piece of meat was found situated laterally near the glottis, but not causing complete obstruction. It was held that the meat caused a reflex spasm, which threw an extra and fatal strain on a weak heart; there were none of the usual symptoms of asphyxia, and no venous engorgement was present. This case is parallel with the deaths attributed unwarrantably to strangulation, where perhaps there is but little mark of tie, string, or cord used in making the attempt. Dr. Armstrong-Jones seems to have had a bad time with typhoid fever, which seems to have pursued a fitful course. Much trouble was taken in examination for Widal reaction with a view to disinfection, but the source was not discovered.

At the Epileptic Colony, in every admission the blood-serum was examined by the Wassermann test, and in no case of uncomplicated epilepsy has a positive reaction been obtained. In the case of a boy who was non-epileptic and who was suffering from a gumma, the reaction was negative, but he had been treated a few months previously in Paris with "606." Among the 37 direct admissions near relatives suffered from epilepsy in 3 cases, from alcohol in 4 cases, and from insanity in 4 cases. In 8 of the 14 deaths epilepsy was the cause, in 2 death resulted from a fit, in 3 from the *status epilepticus*, and in the other 3 from exhaustion following an increased number of fits. In 4 cases improvement justified discharge to the care of the parents, and in all these cases the fits had been controlled by intensive bromide treatment.

In the report of the Directors of the Pathological Laboratory Dr. Mott continues his account of the work done regarding the incidence of mental deficiency among the offspring of the London insane.

The investigations regarding the incidence of mental deficiency among the offspring of the insane in the London County Asylums has been continued during the year 1914. The Asylum authorities have ascertained the names and ages of the children under 16, with the school attended, of all the married admissions during the year. Copies of these notes have been forwarded to the Education authorities who have reported those children regarded as mentally defective.

Altogether the families of 588 insane parents have been investigated, and according to the reports received from the Education authorities only 15 (2 to 3 *per cent.*) of these had mentally defective children.

The reports show that these parents had 1,003 children of school age, 6-16, of whom 16 (1 to 2 *per cent.*) were reported as mentally defective. Two of these children belonged to the same family; a family which I have often used as an illustration of a remarkable transmission of blindness, insanity, and pauperism through many generations.

Statistics regarding families (children under 16 years of age) of insane admissions to the London County Asylums during 1914, in which no mental deficiency is reported amongst offspring—573 families investigated.

Number of insane parents.—Male, 275; female, 298; total, 573.

Number of children of school age, 6-16 years of age.—Male, 472; female, 489; total, 961.

Number of children under school age, 5 and under.—Male, 222; female, 185; total, 407.

Number of children of unknown age.—Male, 18; female, 13; total, 31.

First attack of insanity in parent.—Male, 214; female, 214; total, 428.

Not first attack of insanity in parent.—Male, 48; female, 79; total, 127.

Unknown whether first attack of insanity.—Male, 12; female, 6; total, 18.

From the information furnished by the reports, an attempt has been made to approximate the number of children born after the first attack of insanity in the parent.

MOTHERS.

Number of children born after first attack, 6-16 years of age.—Male 14; female, 17; total, 31.

Number of children born after first attack under school age, 5 and under.—Male, 18; female, 18; total, 36.

FATHERS.

Number of children born after first attack, 6-16 years of age.—Male, 10; female, 7; total, 17.

Number of children born after first attack under school age, 5 and under.—Male, 14; female, 11; total, 25.

The reports show that only 56 out of 573 parents had children after their first attack of insanity, and that 106 children were born after the onset of insanity in the parent, whereas the remaining 1,259 children were born before the parent became insane.

These figures show that the majority of the children are born before the patient becomes insane, and this agrees with the age periods of the onset of insanity in the great majority of the parents. Voluntary restriction of birth may partially account for the small number of children born after first attack. Again, there is evidence to show that in certain types of insanity the reproductive organs may suffer in their genetic function, and, lastly, a residence in the asylum for a time during the period when propagation can occur would tend to limit the birth of children.

AGE AT ONSET OF INSANITY IN PARENTS—FIRST ATTACK CASES.

	Insanity occurring within 3 months after birth of child.		Insanity occurring within 3 months to 1 year after birth of child.		Total.	
	Male.	Female.	Puerperal. Female.	Male.	Female.	Male. Female.
20-24 .	1	2	2	—	1	1 5
25-29 .	10	8	7	—	5	10 20
30-34 .	32	31	7	8	7	40 45
35-39 .	31	40	3	7	11	38 54
40-44 .	44	35	—	3	3	47 38
45-49 .	34	36	1	3	—	37 37
50-54 .	21	13	—	1	—	22 13
55-59 .	17	1	—	—	—	17 1
60-64 .	2	1	—	—	—	2 1
	192	167	20	22	27	214 214

Considering the above table it appears that in the females 20 out of 214 first attacks occurred within three months of childbirth, and were therefore probably puerperal; a further 27 occurred within three months to one year following childbirth, and some of these may have a direct or indirect connection with the reproductive function. The table also shows a large incidence in the climacteric period in women, and it will be noticed that the involutional period in males occurs later, the comparatively high incidence between 40 and 50 being largely due to the greater frequency of general paralysis.

The foregoing work started from the asylum. Miss Agnes Kelly, on the other hand, starts from the special schools with an investigation into histories and environment of 60 mentally defective children. This work has not advanced far enough to afford material for report. But we again express our strong conviction that only by such patient spade-work as is thus carried on in combination can a safe foundation for sound theory be laid.

The Wassermann reaction, and the relation of insanity to the ductless

glands and reproductive organs, have been the subjects of much work undertaken by Mr. Mann and Dr. Kojima (Tokio) respectively, under the direction of Dr. Mott.

The report of Mr. Clifford Smith, the engineer of the asylum, shows, like those of other departments, difficulties caused by the war—shortening of his staff. On the other hand, the war has brought about considerable postponement of necessary work. The comparative statement of consumption of coal, gas, water, and electricity also shows the influence of the war, the reduction in the use of each being appreciable, while the number of inmates has slightly increased.

At *Bexley* the steam-engines used in generating current have hitherto had their cylinders lubricated with oil. Now this is done with a preparation of graphite, with the result that 140 tons of water evaporated weekly, which were run to waste formerly as being tainted with oil, are now saved and used over again in the boilers. This improvement has made its mark on the coal-bill.

Mr. Keene continues his most valuable analysis of the statistical information supplied by the ten institutions containing London's insane. Though the facts forming the basis of those statistics were gathered and recorded before the war affected the staff, the actual collation and valuation of them have been carried out when many of his colleagues have been taken away. The greater is the debt, therefore, which is owed to him for keeping alive systematic work which sooner or later must be of the first service in sorting out and attacking the various problems connected with the study of insanity. It is much to be feared that, however willing he may be, he will not be supplied with a full quantum of material during the continuance of the war. But, happily, many of his tables deal with those figures which must, in the nature of things, be recorded, and these go some way towards evidencing the movements of the insane in masses, though they stop short of yielding information about the purely medical aspects.

In the table which shows the happenings to patients, in series of ten years, it is seen that in spite of an increased exit by death on the male side in the last decennium the total exit is lower than that of the preceding decennium, the exit by recovery having dwindled enormously, *viz.*, from 22.53 *per cent.* of the total under treatment to 17.85 *per cent.* The female recovery rate has decreased nearly as much, but the total exit is not affected, since the death-rate has increased sufficiently to meet the difference. The average exit for both sexes combined is lower for the decennium 1905-14 by 1 *per cent.* than for 1895-1904; but when the question is attacked on a basis of percentage of average numbers on the register and by series of four years the check on former exit is still more marked. The average exit for the four years 1911-14 is 1.28 lower than the average of 1907-1910, 3.12 lower than that of 1903-1906, and 8.03 lower than that of 1891-1894.

These facts go far to account for the increase in the asylum population of the area, and must augur very unfavourably for the future generations of ratepayers. While the death-rate in the last twenty-four years has, thanks to medical and sanitary endeavour, moved down from 9.81 to 8.64, the recovery-rate, in spite of the best medical and sanitary endeavour, receded from 11.56 to 4.70 on average residence. Really

it would seem that when most have come to the conclusion that there is no appreciable increase of insanity, another question, almost more serious, arises as to the increasing incurability of the disease when it does occur. Perhaps it may be urged that those who have to decide on the fitness for discharge on recovery are becoming more critical; but that, of course, cannot account for such a vast disproportion. Mr. Keene has some evidence of that increased criticism of recovery in the fact that the proportion of readmissions occurring among admissions is lessening.

The proportion of first-attack cases among the admissions increases slowly.

It is somewhat serious to find that the number of direct admissions of patients under 30 years of age tends to increase after showing a fall over previous years, but the over-70 proportion has not altered materially in the last few years.

The table showing the proportions in which the principal various forms of insanity occur among the admissions is always interesting. Recent mania and recent melancholia dwindle year by year, the former having continuously dropped in the last six years from 14·19 to 9·60, while a similar fall has occurred in the latter from 23·07 to 17·61. This falling off will, of course, suggest a valid explanation of the fall in recovery-rates. The only other form that shows any marked change is non-systematised delusional insanity, which has grown by regular stages from 8·36 to 11·33. This, too, is not in favour of a good recovery-rate.

The most satisfactory History Table is continued. This shows what has happened in the way of recovery or death to patients when arranged according to the form of mental disease on admission. Also one finds a subsidiary table, in which the form of mental disease is replaced by the assigned cause. These tables must cause much trouble in elaboration, but, in our opinion, are now indispensable, and will become of more value each year as the field of inquiry broadens, and possible errors are minimised by the increasing bulk of contributory figures. Of course any conclusions drawn from these tables regarding the chance of recovery in a given case must be affected by the condition of the individual, his age, his environment, and so on. But it must be of great assistance to be able to rely on the experience afforded by the tables, when a patient is found to have no decided departure from the average and in the influence of such factors.

Regarding ætiology, the various factors do not show any sensible departure from the usual. Mr. Keene usefully ranges the principal factors in two tables side by side, the one dealing with all cases, the other with first attacks only. In both the factors are enumerated as principal and contributory combined. Several of the figures supply material for thought. Why should alcohol always appear as a factor in far greater proportion in all cases than in first-attack cases only? With syphilis the proportion is the other way. It is somewhat alarming to find that syphilis enters into 15 *per cent.* of the first-attack histories, and to this proportion must be added the findings on subsequent medical examination and tests.

Certain facts connected with the recoveries need comment. In

8 years 8,559 recoveries took place. Of these the number of recoveries under 20 years of age was 410; between 20 and 40, 3,980; between 40 and 60, 3,400; over 60, 769; 658 patients recovered who were over 60 at commencement of the attack. The duration of the attack is stated thus: Less than 6 months, 349; 6-12 months, 2,674; over 1 and less than 5 years, 2,286; over 5 years, 413.

In connection with the death table Mr. Keene quotes the death-rate from tuberculosis, which, as usual, is lightest at Cane Hill, on the chalk, while Claybury, which certainly is not on chalk, has the highest rate, closely followed by Colney Hatch. The average death-rate, calculated on the average residence in the last four years, is still lowest at Cane Hill and highest at Colney Hatch, Claybury being close on the latter. In this relation Mr. Keene usefully points out a possible source of fallacy. The average number of residents includes both recent and long-standing cases. The mortality of the former is notoriously higher than that of the latter, and therefore the relative number of admissions should be brought under consideration when comparison is made. Claybury and Colney Hatch admissions are considerably in excess of those at other asylums. This is a point which is quite worth following up, as doubtless it will be when Mr. Keene has more opportunity and help.

Regarding the form of mental disease in those resident at the end of the year, the bulk consists of dementia and chronic mania and delusional insanity. The rapidly fatal character of general paralysis is demonstrated by the fact that while 9 *per cent.* of the admissions are due to it, only 2 *per cent.* of these cases are found at the end of the year. Of the whole 20,500 patients only 2·13 presented a favourable chance of recovery.

This being the first report of the new bodies governing institutions for mental disease, *viz.*, the Asylums and Mental Deficiency Committee, there is at the end of the volume a short notice of what has been done for mental defectives. It will be remembered that the London County Council has decided to alter the character of its Asylum Committee, by seeking Parliamentary authority for reducing the status of the Committee to that of its other Committees. Thus the "statutory" character would be taken away, and much of the policy of the Statutory Committee would be determined and carried into effect by the County Council itself. We have before this expressed our strong opinion that this is a step which will not prove to be in the best interests of the insane, unless indeed the whole Council becomes the Committee, and thus its members are one and all individually brought into contact with the patients. The ordinary committee-man's lines of thought do not apply to the care of the insane. But of course Parliament is not as yet able to give the London County Council the time required to satisfy its wishes. But the Council is determined to keep matters as much as possible in its own hands pending legislation. In appointing the Mental Deficiency Committee the delegation was much the same as that in the case of its Education Committee. All general principles are to be determined by the Council, and all questions of importance are to be reported to the Council for its decision. Thus, apparently, nothing but spade work is left to the Committee itself. The Council

procured an order from the Home Secretary under Section 66 of the Mental Deficiency Act, whereby the Mental Deficiency Committee is appointed to be the Asylums Committee. It will, of course, be bound in the latter functions by the Lunacy Acts until Parliament assents to the Council's proposal, but much of the statutory powers of managing the asylum will be shown from it. Mr. H. F. Keene, being the Clerk to the Visiting Committee, has been appointed to the same office under the Mental Deficiency Committee. The County Medical Officer, who is also the School Medical Officer, is appointed to office under the latter Committee; this is a step which is certainly wise. An elaborate memorandum has been drawn up defining the duties of each of these two executive officers, so that neither overlapping nor friction should lessen that ease of administration which is so much called for by the extent of the work to be done.

Mr. Keene, who, we suppose, has drawn up this portion of the report, details some of the difficulties connected with the administration of the Mental Deficiency Act. Among others is that coming under the second series of tests which must be passed before a person can be dealt with under the Act. It is only a few who can, in all conscience, satisfy requirements. He instances the common case of a defective child (*i.e.*, not an idiot or imbecile) who needs after a time more special care or education than the fondest of parents can give. Can such a child be deemed to be neglected, abandoned, without visible means of support, or cruelly treated? The difficulty is partly solved by concluding that the word "neglected" must cover cases where, without any wilful omission, the care and accommodation provided, which might be adequate for a normal person, are inadequate for one who is defective; in other words, that neglect may be constructive as well as positive. This has enabled action to be taken in many cases. Some negotiation, which indeed must be delicate, is passing between the Council and the Metropolitan Asylums Board, whose institutions are obviously most suitable for the mental defectives belonging to the Council.

Part IV.—Notes and News.

THE MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.

THE QUARTERLY GENERAL MEETING of the Association was held at the Medical Society's Rooms, No. 11, Chandos Street, Cavendish Square, London, on Tuesday, May 16th, 1916, Lieut.-Colonel David G. Thomson, M.D., President, in the chair.

There were present: Drs. T. S. Adair, H. T. S. Aveline, Fletcher Beach, D. Bower, J. Chambers, R. H. Cole, M. Craig, J. F. Dixon, A. C. Dove, T. Drapes, R. Eager, J. H. Earls, C. F. Fothergill, A. H. Griffith, H. E. Haynes, T. B. Hyslop, J. Keay, N. T. Kerr, R. L. Langdon-Down, N. Lavers, H. J. Mackenzie, A. Miller, J. M. Murray, A. W. Neill, W. F. Nelis, H. H. Newington, D. Orr, J. G. P. Phillips, W. A. Potts, R. G. Rows, Sir G. H. Savage, J. N. Sergeant, G. E. Shuttleworth, R. P. Smith, J. G. Soutar, T. E. K. Stansfield, H. F. Stephens,

J. Stewart, F. R. P. Taylor, H. Wolseley-Lewis, and R. H. Steen (Acting Hon. Gen. Sec.).

Present at the Council Meeting: Lieut.-Colonel D. G. Thomson, M.D. (President) in the chair, Drs. T. S. Adair, H. T. S. Aveline, J. Chambers, R. H. Cole, T. Drapes, J. Keay, N. T. Kerr, N. Lavers, H. J. Mackenzie, A. Miller, H. H. Newington, J. G. Porter Phillips, J. N. Sergeant, J. G. Soutar, T. E. K. Stansfield, H. Wolseley-Lewis, and R. H. Steen (Acting Hon. Gen. Sec.).

Apologies for absence were received from: Drs. R. B. Campbell, C. C. Easterbrook, R. R. Leeper, G. D. McRae, Bedford Pierce, and W. R. Watson.

MINUTES.

The minutes of the previous meeting, having been published in the *Journal of Mental Science* for April, were taken as read, confirmed, and duly signed.

The PRESIDENT said that the only business arising out of the previous Council meeting was that the Council wished members to know that they had had under consideration the serious depletion of the male staffs of asylums. The Council had held a special meeting on the matter, and were at present in correspondence with the Board of Control thereon. A perusal of the *Journal* for April would show the length to which the question had been taken.

THE LATE MR. HINE, F.R.I.B.A.

The PRESIDENT said he was sure every member would be sorry to hear that a gentleman who had been an Honorary Member of the Association since 1898, Mr. Hine, F.R.I.B.A., the Architect, had passed away. He died in April. As was known to members, Mr. Hine designed and altered a great many public asylums, and had done a great deal in connection with that part of the work which they of the specialty deemed so important, namely, the comfortable and suitable housing of the insane. He moved, from the chair, that a vote of condolence be sent to his family.

The resolution was confirmed by members rising in their places.

THE LATE DR. MORRISON AND DR. O'NEILL.

The PRESIDENT also announced that a letter had been received from Mrs. Morrison, the widow of Dr. Morrison, thanking the Association for its message of condolence. A similar communication was received from Miss O'Neill.

PAPERS.

Dr. DAVID ORR and Major ROWS, R.A.M.C., M.D.: "Experimental Toxic Lesions in the Rabbit's Brain, and their bearing on the Genesis of Acquired Idiocy and Imbecility in Man." (With lantern demonstration.)

The PRESIDENT, receiving no response to his invitation to members to discuss the contributions, said it was as he feared, namely, that such learned and advanced views on these recondite problems prevented anything being said upon them which might be termed a discussion. But he was sure that the members present would at least join with him in thanking Dr. Orr and Major Rows for having brought such extremely interesting matters before them. Personally, it was a great relief to him to hear pure medicine again, after the routine which they, administrators, were at present steeped in. He had been much interested in the narration of the case of psychic vomiting. There was at the present time, in the hospital of which he had charge, a man who appeared physically sound, to all the ordinary methods of physical examination. The surgeons had done various things for him, and finally he had been handed over to the physician. The case was, originally, one of shell shock, and the most striking stimulus which caused vomiting was the entry of a new case or convoy of cases into the ward, the vomiting being more violent if a convoy appeared than if only one case were admitted. Various expedients to reduce the vomiting had been tried, such as removing the patient to a place a little removed from the ward during the actual process of admission of the new cases,

but there was no success from that manoeuvre. Nor had the use of screens any effect. Members would agree that the theses of the authors had been admirably presented, with their usual methodical precision.

The resolution of thanks was carried with acclamation.

THE 1916 ANNUAL MEETING.

The PRESIDENT said it was the business of this meeting to fix the date and place of the Annual Meeting for the summer. The meeting this year would not be of the usual character, in regard to either length, quality, or quantity; it would be a one-day meeting, and it was proposed to hold it in these rooms, on July 27th, which was the day before the annual representative meeting of the British Medical Association, so that members attending both functions would be inconvenienced. The purpose of the meeting would be mainly to transact business. Papers would be welcomed, but there would be no social side to the meeting.

The following further correspondence has taken place between the Board of Control, and the Secretary of the Association :

CITY OF LONDON MENTAL HOSPITAL,
NEAR DARTFORD, KENT,
May 17th, 1916.

Medico-Psychological Association of Great Britain and Ireland.

SIR,—At a meeting of the Council of this Association held on May 16th, the letter received from the Board of Control dated April 4th, 1916, was considered, and I was directed to thank the Board for their courtesy in so promptly replying to the letter from the Association dated March 26th, 1916.

I was further directed to state that the Council were fully cognisant of the fact that the artisan and other staff did not form the subject of recommendations by the Board of Control. The Tribunals, unfettered by recommendations, and on the consideration of each case on its merits, have generally exempted a sufficient number of men in divisions 3, 4, 5 and 6 to carry on efficiently the work of the departments in which they are employed. It is only in the staff of male attendants that depletion in the numbers has been so excessive as to seriously threaten the main purpose of asylum management, *vis.*, the care and treatment of the insane. Asylum authorities and their Medical Officers have hitherto decided what staff is necessary for the proper care of the patients for whom they are responsible. The view of the Council is that no other body is really competent in the absence of local knowledge to express a valid opinion on this matter. A sound decision thereon involves a fuller knowledge of facts than can possibly be obtained by a central board from even the most elaborate tabulated particulars. This being so, a very serious situation must arise wherever Local Tribunals consider themselves limited by the recommendations of the Board, who are, necessarily, only imperfectly acquainted with the requirements of individual asylums.

A conflict of opinion, which the Council regret, has thus arisen in many instances between the Board and asylum authorities as to what men are indispensable. On their record Asylum Medical Officers and the Committees whom they advise are to be trusted to encourage, not to hinder, recruiting, and had they been left free to prove to Local Tribunals that each man applied for is indispensable the result would have been more satisfactory.

The opinion of the Board that the circumstances of the time justify "risks being faced, amenities being curtailed which would not be permissible under ordinary circumstances, and a reduction in the high standard of comfort and efficiency which has very properly characterised asylum management for so many years," is not one to which the Council of the Medico-Psychological Association can subscribe. It is feared that such an admission would make easy a relapse to the extensive resort to seclusion and mechanical and chemical restraint which prevailed in the days when attendants were few and inefficient.

While the Council recognise the generous motive which prompted the last paragraph of the Board's letter, they feel that Asylum Visiting Committees and Medical

Officers cannot and would not desire to shift to the Board of Control a responsibility which is morally and legally their own.

To save the already dangerously depleted asylums from the almost complete denudation of a skilled and physically fit staff of male attendants, the Council suggest that steps should be taken (1) to obtain total exemption for those men to whom temporary exemption has been granted, and (2) to secure that attendants who have already been rejected as being medically unfit shall not be accepted on re-examination unless they be found fit for service in the fighting forces abroad, and that in the event of their being so accepted it shall be competent for the asylum authorities to appeal to the Local Tribunals for the total exemption of such of these men as they may deem to be indispensable.

In this way only does it now seem possible to retain a remnant of reliable men as attendants, and the Council of the Medico-Psychological Association will be thankful and relieved of some anxiety if the Board of Control can see their way to support and further these proposals.

I am, Sir, your obedient servant,

The Secretary,
The Board of Control.
66, Victoria Street, Westminster,
London, S.W.

R. H. STEEN,
Acting Hon. General Secretary.

THE BOARD OF CONTROL,
66, VICTORIA STREET, S.W.
1st July, 1916.

SIR,—I am directed by the Board of Control to advert to your letter of the 17th May on behalf of the Council of the Medico-Psychological Association of Great Britain and Ireland, and relating to the recommendation for exemption of Asylum Attendants from Military Service, and to reply as follows:

As foreshadowed in the Board's letter accompanying the first set of recommendations, a considerable number of attendants, for whom temporary exemption was originally recommended, have now on further recommendations been granted full conditional exemption. In the cases of many other attendants additional temporary exemption has been granted, which may be still further extended should this prove necessary.

As the Board continue to have this power to renew recommendations for exemption, they do not consider it necessary that they should take steps to procure forthwith the total conditional exemption of attendants now temporarily exempted, nor of the men now employed in asylums who have been rejected as being medically unfit, but who, it is thought, may possibly, as time goes on, be considered after further examination fit for service in one or other of the military branches, but not in the fighting forces abroad. The Board will, however, be pleased at once to consider any particular case if submitted to them by the Asylum Authority.

The arguments adduced and the opinions expressed by the Council in the earlier part of the letter have been read with some surprise, and while the Board do not propose to enter into them at length, I am to mention the following facts.

The policy of withholding from the Asylum Visiting Committees the power of final decision, as to how many and which of their male staff shall be exempted from military service, is in harmony with that in force throughout the country under the Military Service Acts, namely, that employers are not to be the final judges of their own cases.

The suggestions contained in the Council's letter that the Board of Control are without knowledge of local circumstances; that they are imperfectly acquainted with the requirements of individual asylums; and that they are dependent for their decisions upon tabulated particulars, are not in accordance with facts. I am to express the Board's surprise that such a view should emanate from the Council of the Medico-Psychological Association. The Board, as they thought the Council were aware, have ample facilities for supplementing their knowledge of particular circumstances, and they freely avail themselves thereof when necessary.

The duty which has been imposed upon the Board was not of their own seeking. That some differences of opinion would occur between the Board and some of the Visiting Committees and their Medical Superintendents was inevitable; but in most instances after personal interviews the Board's views have been accepted.

The justification, if one were needed, for invoking the assistance of the Board in the matter is the fact that, as the result of their action, a considerable number of men have been set free for the Army, admittedly not without somewhat increasing the anxieties of the Visiting Committees and their Medical Officers, but so far without untoward events.

The Council of the Association are in error in thinking (as is suggested by your letter) that the Local Tribunals have any power of exercising discretion outside the recommendations of the Board in dealing with asylum attendants as persons in a certified occupation, and, wherever it has come to the knowledge of the Board that any Tribunal has attempted to exercise any such discretion, the fact has not been allowed to pass unnoticed.

The inability of the Council to concur in the Board's opinion as to the principles of asylum management which should be followed in the present national crisis is, the Board think, to be regretted. It will be the duty of the Board, as well as of asylum authorities, firmly to exert their influence at the conclusion of the War to bring about a return to a proper standard, and in this they feel sure the co-operation of the Medico-Psychological Association may be counted upon.

I am to add that the Board of Control cannot accept the position which the Council of the Association take up, in attempting to express an opinion as regards the ability or willingness of Asylum Visiting Committees to place responsibility upon the Board in this matter. As a matter of fact, the Board are in possession of letters from a considerable number of Committees, in which the latter either invite the Board to assume such responsibility or express their satisfaction at the offer of the Board to do so.

I am, Sir, your obedient servant,

O. E. DICKINSON,
Secretary.

The Acting Hon. General Secretary,
Medico-Psychological Association
of Great Britain and Ireland.

SOUTH-EASTERN DIVISION.

THE SPRING MEETING of the South Eastern Division was held at 11, Chandos Street, Cavendish Square, London, W., at 2.30 p.m. on Friday, April 28th, 1916. Among those present were Drs. Baird, Bower, Ralph Brown, Earls, Haynes, J. M. Murray, Norman, Stewart, Watson, and J. N. Sergeant (Hon. Sec.).

The minutes of the last meeting, having been published in the Journal, were taken as read and confirmed.

Drs. R. Armstrong-Jones, Hubert J. Norman, T. E. K. Stansfield, and W. H. B. Stoddart were elected Representative Members of the Council, and Dr. J. Noel Sergeant Hon. Divisional Secretary for the year 1916-1917. Drs. Fuller, Higson, and F. Watson were elected members of the Divisional Committee of Management.

It was decided to hold the Autumn Meeting at 11, Chandos Street, Cavendish Square, London, W., on Wednesday, October 4th, 1916.

Dr. Hubert J. Norman then read his paper on "The Cerebral Complications of Raynaud's Disease."

After a brief discussion a vote of thanks to Dr. Norman for his interesting paper was carried by acclamation.

SOUTH-WESTERN DIVISION.

THE SPRING MEETING of the above Division was held, by kind permission of Dr. MacBryan, at 17, Belmont, Bath, on Friday, April 28th, 1916.

The following Members were present: Drs. Bartlett, Norman Lavers, Legge, MacBryan, and Aveline, who acted as Hon. Divisional Secretary.

Dr. MacBryan was voted to the Chair.

Letters of apology for non-attendance were received from Drs. Eager, MacDonald, and Soutar.

The minutes of the last meeting were read and confirmed.

Dr. G. N. Bartlett was appointed Hon. Divisional Secretary.

Drs. Norman Lavers and G. S. Pope were elected as Representative Members of Council.

Drs. Aveline and J. M. Rutherford were elected as Members of the Committee of Management.

The Autumn Meeting was fixed for Friday, October 27th, 1916, the place of meeting being left to the Hon. Secretary, and the Spring Meeting for Friday, April 27th, 1917.

The members present alluded to the loss sustained by the Division in the recent death of Dr. C. S. Morrison, and it was proposed that the Hon. Secretary be requested to convey their sympathies to Mrs. Morrison.

NORTHERN AND MIDLAND DIVISION.

THE SPRING MEETING of the Northern and Midland Division was held, at the kind invitation of Dr. Hamilton Grills, at the County Asylum, Chester, on Thursday, April 27th, 1916. Dr. Hamilton Grills presided.

The following seven members were present: Drs. H. Dove Cormac, Graeme Dickson, G. Hamilton Grills, C. H. Gwynn, R. W. Dale Hewson, S. Rutherford Macphail, T. Stewart Adair.

Apologies were received from various members who were unable to be present.

The minutes of the last meeting were read and confirmed.

Dr. T. Stewart Adair was unanimously re-elected Secretary for the ensuing twelve months.

Owing to the membership of the Division having fallen below 150, two Representative Members only can be elected to the Council. Dr. J. R. Gilmour and Dr. D. Hunter were unanimously re-elected, Dr. J. W. Geddes having withdrawn his name.

The kind invitations of Col. Vincent, to hold the Autumn Meeting, 1916, at the Wharncliffe War Hospital (Wadsley Asylum), Sheffield, and of Dr. H. Dove Cormac, to hold the Spring Meeting, 1917, at the Cheshire County Asylum, Macclesfield, were cordially accepted. The dates were left to the Secretary to arrange.

Dr. Power, Senior Medical Officer, County Asylum, Chester, was proposed by Dr. Cormac as a Member, and duly seconded. The Secretary stated that this would be put through the Association in the usual way.

An interesting display of various articles of restraint used in the asylum, apparently prior to 1840, was made by Dr. Grills, who gave a short description of them. They included leather appliances for securing various parts of the body, leather gloves with and without handcuffs, iron belts, etc. An informal chat followed on the present difficulty of obtaining male staff, on the employment of female staff in male wards, and other subjects of administrative interest.

A cordial vote of thanks was accorded Dr. Grills for his kind hospitality.

ASYLUM WORKERS' ASSOCIATION.

ANNUAL MEETING.

THE Annual Meeting of the Asylum Workers' Association was held on May 17th at the rooms of the Medical Society of London, 11, Chandos Street, Cavendish Square, the President (Sir John Jardine, Bart., M.P.) in the chair.

ANNUAL REPORT, 1915 (Abridged).

The Central Executive Committee, in submitting their Annual Report for 1915, are proud to be able to record the fact that the response of members of asylum staffs to the call of King and Country has been such as to have been unexcelled in numerical proportion by that of bodies of workers in any other professions or occupations. It was estimated in May last that considerably more than 2,000 attendants in asylums in England and Wales had joined the colours, as well as numerous clerks, artisans, etc. Since that time the numbers have been added to continually, and in many instances practically all the remaining workers of military

age under the various Asylum Authorities have presented themselves for attestation under Lord Derby's scheme. This regular and systematic denudation of staffs since the outbreak of the war has, of necessity, thrown a considerable burden on those remaining in charge of the patients, which has only in part been relieved by the provision of temporary attendants of over military age or otherwise ineligible for service. Numerous nurses have joined the Red Cross, but, speaking generally, the female sides of asylums have not been affected to anything like the same extent as the male sides. Nevertheless, the Central Executive Committee feel that they cannot speak too highly of the self-sacrifice and devotion to duty which on all hands have been displayed by asylum nurses during the present times of stress and anxiety. Several asylums in Great Britain have been converted into war hospitals, and many of the attendants and nurses have been retained for military service; the former enlisting as orderlies in the R.A.M.C., and the latter becoming nurse probationers. The admirable manner in which these have acquitted themselves in their various spheres of work, and the rapidity with which they adapted themselves to the novel conditions, are striking evidences of the efficiency of the training of modern asylum staffs.

The distribution of the former inmates of these war hospitals amongst neighbouring asylums has in many instances added considerably to the already heavy burden imposed upon the officers and staffs responsible for their care and general welfare.

The matter of the position of asylum officers on active service with relation to the Superannuation Act, which was fully discussed in the Annual Report for 1914, continued to engage the attention of the Central Executive Committee during the early months of the year under review, and it gives them much satisfaction to be able to report that Asylum Authorities in England and Wales have, as far as it has been possible to ascertain, made satisfactory provision for the safeguarding of members of their staffs serving with the forces, in this important respect. Twenty of these authorities have passed resolutions in accordance with the suggestions contained in the Association's circular letter of November, 1914, *vis.*, "That for purposes of pensions years be added to the period of service of such officers, corresponding to the time spent on active service with H.M. forces, under Section 2 (3) of the Superannuation Act." In the majority of cases it appears that the alternative course agreed to by the Home Secretary (that of treating active service during the present war as part of their officers' asylum service, and pensionable under the Act) has been adopted. It is possible that after the war certain unforeseen difficulties may become apparent, and for these a solution may be found by the insertion of a special section into the Asylum Officers' Superannuation Act (Amendment) Bill.

The question of the employment of female nurses in the male wards of asylums has on more than one occasion engaged the attention of the Central Executive Committee, who did not consider that the matter was one calling for any resolution or definite expression of opinion on their part. They have, however, encouraged discussion on the subject in the columns of the *Asylum News*.

The Central Executive Committee cannot conclude this report without expressing their indebtedness to Dr. J. Farquharson Powell for his most efficient conduct of the business of the Association as Hon. Secretary. Notwithstanding the increasingly onerous duties of his official position consequent on the war, he has found time not only to act as Secretary but to carry out, with marked ability, the editing of the *Asylum News*, and in both capacities he has earned the grateful appreciation of the Association.

The PRESIDENT, in moving the adoption of the report, said: We have a smaller attendance to-day than we have been used to at these annual gatherings, but I think that the letters of apology for the absence of many distinguished, capable, experienced, and sympathetic men show that if it were not for the extra labour that the war has cast upon nearly everybody we should probably have had a large and distinguished meeting this afternoon. All who know the high purposes of this Association will be pleased to learn that while this country is being assailed by powerful kings and their armies our small population of asylum workers had given more than 2,000 men to the forces last May, and since then a great many more have gone. In many asylums, therefore, the work is being carried on with new staffs. Moreover, many of the medical officers have accepted commissions, and,

like the asylum workers, are now serving the Crown in a way that very few people are able to do—by the application of their own special medical knowledge and experience. The next point has reference to the Superannuation Act. You will see from the report that arrangements have been made to prevent the Superannuation Act from being in any way worked to the injury of those who have gone to the Army or Navy. As for the finance of our Association, it is in a better condition than might have been expected when so many people have gone to the war, and so many calls are being made upon everybody. Taking the report altogether I think we may adopt it with satisfaction. Much is due to the exertions of our officers. (Hear, hear.) We may congratulate them on the way in which the *Asylum News* has been kept going, and on the fact that to a certain extent we have got Dr. Shuttleworth into harness again. (Hear, hear.) There are things that we cannot do without his help.

Lieut.-Colonel THOMSON, R.A.M.C., in seconding the motion, said it was very deplorable that the Executive Committee had found it necessary to limit the *Asylum News* to quarterly instead of monthly issues. The membership of the Association was not quite satisfactory. Compared with that of other organisations it might be regarded as fair, but he thought it could be improved. The people at headquarters had done admirably, but more interest and energy put forth locally might produce good results. (Hear, hear.) Perhaps he might offer a useful hint. The Norfolk County Asylum, of which he had charge, had been converted into a military hospital. Frequent entertainments for all kinds of objects were got up there, and it occurred to him that the asylum people themselves were not unworthy objects. He got the new-comers interested in the subject, and he was glad to say that two little entertainments yielded without the least difficulty £10. He did not think it was laid down clearly enough that the phrase "asylum workers" in connection with the Association included artisans and everybody else, and that all were invited to become members. (Hear, hear.)

Sir JAMES CRICHTON-BROWNE, in the course of his remarks when proposing the re-election of Sir John Jardine as President, after paying a fitting and well-merited tribute to the valuable services Sir John had rendered to the Association, made the following reference to German ideas and methods: It is too soon to speculate what may be the ultimate effects of this war on medical psychology in this country, but there is one effect that is already certain, and that is that it will explode and utterly demolish the spurious deference and respect hitherto bestowed on German teachings and methods. Our young medical psychologists have been wont to hurry off to Berlin, Leipzig, or Vienna, to sit at the feet of some supposed pundit in mental and nervous pathology. Our journals have been full of translations from the German, and we have been plied with adulations of German wisdom. There will be no more of that. I say deliberately that in our department we have nothing to learn from the Hun, that in his treatment of the insane are to be seen traces of the inherent brutality of his nature, and that what has been extolled as German psychological wisdom has been like German sausage, a confused mass of very dubious and indigestible ingredients. (Laughter.) As regards the modern humane treatment of the insane, there is absolutely nothing for which we have to thank Germany. It is France, beginning with Pinel, and England, beginning with Conolly, that have led the way in that matter, and introduced every amelioration. Germany has lagged shamefully behind. As late as 1855 that most cruel invention, the circular swing, by which unhappy patients were whirled round with enormous velocity, until they were seized with sickness and vomiting, and often fainted away in a state of terror—an invention discarded in this country one hundred years ago—was in constant use; and as late as 1871—that is to say, less than fifty years ago—in most German asylums was to be seen the high collar round the throat, used to prevent the patient moving his head, heavy chairs in which patients were securely tied down, stocks in which their feet were held fast, the cuirasse, or leather jacket of stout ox-hide, with sleeves and gloves of the same material, and leather buckles and masks that were strapped over the face and gagged the mouth to prevent screaming. At that time brutality reigned supreme in the so-called lunatic hospitals of Germany; and only a few years ago I saw the strait-waistcoat in free use in a German asylum, and other devices which I could not but condemn. Those who have read the accounts of what took place at the camp at Wittenberg, that den of cowardice and cruelty—(hear, hear)—will not

doubt that inhumanity still lingers in German asylums. There is a vein of hardness and cruelty in the German character that has vitiated their treatment of the mentally afflicted. I have heard of deputations of governors of asylums in this country going to visit asylums in Germany in order to pick up new and useful ideas in the treatment of the insane. They might just as well have stayed at home, except that they might obtain hints as to what to avoid. The arrangements for clinical teaching and scientific investigation in German asylums are superior, and the organisation of the lunacy system is good, for it is in organisation that the Germans excel, but in all that concerns the humane treatment of the patients German asylums are behind the age. One feels in them at once an atmosphere that is different from what prevails in our asylums—a coldness, a severity, an indifference to human suffering that is revolting; and as regards German asylum officers, I would say that they show a coarseness and callousness that painfully contrast with the urbanity and sympathy we are accustomed to here. They largely regard their patients as more or less interesting specimens, but lose sight of their sentience and sorrows. It would be inappropriate that I should discuss here the recent additions to medico-psychological science in this country derived from Germany. Psycho-analysis the most notable of these is called—"prurio-analysis," I should be inclined to call it—a slimy, useless, and offensive agitation of human sludge. I confess I turn with disgust from the German text-books, such as those of Kraft-Ebbing and Freud—the former was a favourite study of Oscar Wilde—and thank God for the clarity, the directness, the practical cleanness, and common-sense of our nature-grown medical psychology. (Cheers.)

Dr. G. E. SHUTTLEWORTH, seconding the motion, said that nobody knew better than himself the many excellent qualities which had made Sir John Jardine a tower of strength to the Association. As he (Dr. Shuttleworth) was Hon. Secretary when the President accepted office, he could testify that in season and out of season he was always accessible for advice and assistance about anything likely to benefit asylum workers. Sir John Jardine had a greater part than was generally known in the passing of the Asylums Officers' Superannuation Act of 1909. He was what might be called chief lieutenant to Sir William Collins, President of the Association at the time, who successfully passed the Bill, which Sir John backed. Indeed, priority in desiring such a measure might perhaps be given to Sir John, for he had actually brought in a Scottish Bill on the subject, but he was good enough to hand over his position to Sir William Collins, and amalgamate his proposals with those of the latter in a comprehensive Bill for the whole kingdom. People were apt to think the Act of 1909 was the end of legislation in connection with superannuation, but it was nothing of the kind. Sir John Jardine had introduced into the House of Commons an amending Bill to establish desirable points which in 1909 were dropped in order to secure the passage of that year's measure. (Hear, hear.) These points related to the age qualification for superannuation and other matters. They held that twenty-five years' service should be enough to qualify for superannuation in the case of women, whatever their age. They would like to have the same thing for men, but were told that in this case they were sure to be refused superannuation, on grounds of precedence, before the age of fifty. If Sir John Jardine could secure these two points for them—not to mention others—they would think themselves lucky to have retained him as their President. (Hear, hear.) He (Dr. Shuttleworth) had that morning come across an original prospectus of the Association. He was not the first Secretary, though some people thought he was. Dr. Harding, of Northampton Asylum, and afterwards Dr. Walmsley, of Darenth, preceded him. The founders were Miss Honnor Morten (now deceased), of nursing fame, and Miss Laura Evans, then Matron of the Northampton Asylum. The Association had ever been lucky in its *personnel*. It was attaining its majority this year, and during the twenty-one years had had five eminent Presidents. The first was Sir Benjamin Ward Richardson. Then came Sir James Crichton-Browne (whom they were proud to see with them to-day). After him the presidency was held successively by Sir John Batty Tuke and by Sir William Collins. Now they had Sir John Jardine, and he did not know that any society could have been more fortunate in securing a succession of such able and distinguished Presidents. (Hear, hear.) The Association's first circular calculated that there ought to be at least 5,000 members, in order to secure satisfactory working. Something like that number was obtained while the work of promoting

the Superannuation Act of 1909 was going on, but as soon as the measure became law the membership fell. People thought they had got what they wanted, and they probably asked why, in that case, they should continue to pay subscriptions. That looked rather like proverbially short-lived gratitude, but he hoped asylum workers would realise the necessity for renewed effort, and that the membership would again increase in view of the need of still further improving the position of asylum employees of all classes in relation to superannuation by vigorously pressing on Sir John's new Bill as soon as opportunity occurred. There was a new direction in which he hoped to see the members of the Association multiplying. Under the Mental Deficiency Act, 1913, many new institutions were being organised and brought under the supervision of the Board of Control, and there would be more still when at length peace arrived. It would be incumbent on people employed in the care of the mentally deficient to be as well equipped as those in the service of the insane. The Board of Control had issued a circular stating that they intended to take account of the qualifications of persons employed in connection with mental deficiency cases. Some who belonged to the Asylum Workers' Association had practical knowledge of the care of the mentally deficient, and would be glad to enrol in the Association persons engaged in that work and to look after their interests, which were akin to those of asylum workers generally. He hoped that the Medico-Psychological Association would be willing to lend a hand in the special training necessary for this class of workers. (Hear, hear.) At present between eighty and ninety institutions, large and small, were recognised by the Board of Control, but the number would probably be doubled eventually, and then there would be a considerable recruiting ground for the Association. (Hear, hear.) He wished to say, before sitting down, how fortunate he had been personally in finding so able a successor in the hon. secretaryship as Dr. Farquharson Powell, whose proved tact, ability, and industry had ensured success in the work he had so generously undertaken both as Secretary and Editor. The Association possessed another able official (with the advantage of lengthened experience) in Mr. Wilson, who assisted Dr. Powell, and if anything were needed to make the satisfactory condition of the secretaryship complete it would be found in the fact that these two worked most admirably and efficiently together. (Cheers.)

The re-election of the President was carried by acclamation.

THE following appeared in the April number of *The American Journal of Insanity*:

"HOSPITAL 'PREPAREDNESS' IN ENGLAND.

"Not the least of the many lessons taught by the European war is the importance of taking stock of the provision for sick and wounded soldiers and sailors in preparing for a sudden emergency. This feature of preparedness is brought out in striking and most interesting fashion by the address of Lieut.-Col. D. G. Thomson, M.D., President of the British Medico-Psychological Association, who, as officer-in-charge of the Norfolk War Hospital, took this year as his theme 'The Conversion of a County Asylum into a War Hospital for Sick and Wounded.'⁽¹⁾

"At the outbreak of the war it was thought, not unnaturally, that in a maritime nation like Great Britain there would be great naval engagements involving the landing on the North Sea coast of a vast number of sick and wounded men, whereas the naval hospitals were situated far away on the south coast. With this idea in mind, Norfolk, being the nearest point to German naval bases, offered as early as August 5th, 1914, to furnish the Admiralty 100 beds and to erect tents for 150 more in the Norfolk and Norwich Hospital. This offer not having been accepted, it was transferred later to the War Office, and on October 17th the first convoy of 100 sick and wounded men arrived. In the same month occurred the battles of the Marne and Aisne, which, in view of probable requirements, suggested inquiry as to facilities for treating the wounded in asylums. Thereupon, on November 23rd, the Norfolk County Asylum offered 100 beds. Towards the end of January, 1915, the War Office, when the impression obtained that the Allies contemplated an advance against the enemy in spring, invoked provision for 50,000 beds, of which number the Board of Control requisitioned for 15,000 in

⁽¹⁾ *Journal of Mental Science*, January, 1916.

asylums. The plan was that certain county and borough asylums near large towns should be handed over to the War Office. Dr. Thomson describes how this herculean task was accomplished, and, despite his great modesty, one cannot fail to see with how great patriotism and efficiency the upheaval was met, and the extraordinary service rendered. It would carry us too far to go into the details of conversion in the twelve hospitals upon which the War Office levied. Briefly, the scheme involved the division of the whole asylum system into groups, and when one of the institutions had been selected for war purposes, its patients were distributed among the other members of the group, or otherwise provided for. At first there was an unreasoning outcry of prejudice and ignorance in the press about the 'outrage' of turning over the sick and wounded to 'lunatic asylums,' which was soon stilled, however, when the propriety and potential adequateness of the provision were appreciated. The readaptation of the buildings themselves presented no serious difficulties. Contrary to expectation, there was very little friction between the former mental nurses and the hospital-trained newcomers. The men who had been trained as asylum attendants won great praise as orderlies. The conduct of the patients was excellent on the whole, and there was no trouble as to discipline. Dr. Thomson attributes the general contentment to the ample and well-cooked food, the careful planning of occupation and amusements, and the reduction to the minimum of all unnecessary restrictions on their liberty. In the discussion which followed the address it appeared that minor changes in structural arrangements and in method have been effected such as will endure to the permanent benefit of the insane. Mention was made, for instance, of better ventilation by departing from the 'asylum' type of window, of handles on the room doors, and of other like modern innovations which the converted war hospital has brought in its wake. No one can read the address without being greatly impressed with the magnificent spirit and thoroughness with which the work was carried through. Dr. Thomson pays a high tribute to Dr. Marriott Cooke and Dr. Hubert Bond, Lunacy Commissioners, but it is easy enough to read between the lines that the President of the British Medico-Psychological Association has himself been *magna pars* in the performance of a great work of reorganisation. The Journal salutes the Lieutenant-Colonel."

[While thoroughly endorsing the generous appreciation of the President's work by our Transatlantic friends, as conveyed in the above, we feel that it would be unfair (and Colonel Thomson would probably be the first to deprecate the omission) to make no mention of the Medical Superintendents of other asylums who have been called upon to perform a similar task, and who have carried it out with equally signal success. The country owes them an enormous debt for their skilful and untiring efforts towards providing cheery and comfortable homes for the temporary residence of our wounded, where their prospects of recovery are probably brighter than they would be in almost any other surroundings. We salute them, one and all.—ED. J.M.S.]

EXAMINATION FOR NURSING CERTIFICATE, MAY, 1916.

PRELIMINARY EXAMINATION, MAY, 1916.

List of Questions.

1. What is the position of the heart? Describe shortly its structure and the course of the blood through it.
2. What are the chief symptoms of carbolic acid poisoning? If a patient drinks a quantity of carbolic lotion, what would you do?
3. What is the difference between fracture and dislocation? What signs would make you think a patient had a dislocated shoulder joint? How would you render aid in such a case to enable the patient to get home?
4. What is the composition of the blood? What are the differences between arterial and venous blood? How would you distinguish between bleeding from an artery and from a vein?
5. What are the functions of the kidneys? State generally the composition of the urine.

6. To what danger is a patient exposed who sustains an open wound? How can these dangers be counteracted?
7. What are the uses of respiration? Explain its mechanism.
8. What are the varieties of bones? Give an example of each.

FINAL EXAMINATION.

List of Questions.

1. Describe a case of Acute Delirious Mania which has come under your own observation. What are the general lines of management of such an illness?
2. Give a short description of a Neurone.
3. What do you understand by an Emotion? What disorders of the Emotions are met with in Mental Diseases?
4. Describe fully the nursing of a case of Phthisis (Consumption).
5. A person is found unconscious. What causes might produce this condition, and how would you distinguish between these?
6. Describe minutely the steps you would take to clean and sterilise the various types of catheters immediately before and after use.
7. What is Dropsy? How would you recognise it, and in what parts of the body is it usually found?
8. What are "Stigmata of Degeneration"? Describe some examples you may have seen.

EXAMINATION FOR NURSING CERTIFICATE.

FINAL EXAMINATION.

- Abergavenny*.—Sidney Barton, Thomas Jenkins.
- Chester, Upton*.—Mary C. Roberts,* Alice Knowles, Ivy B. Wynde, Elizabeth A. Cadwell.*
- Denbigh*.—Thomas Hughes, Myfanwy Lloyd,* Lizzie J. Williams, Lizzie B. Jones.
- Essex, Brentwood*.—Lily Morrell, Martha Crowe.
- Glamorgan*.—Bessie James, Beatrice M. Evans,* Albert G. Lang, Ernest R. Salisbury, George W. Bryant, Mary Williams,* Sarah A. Rees, Hugh E. Parry, Percy Parry, Edith Hopkin.
- Isle of Wight*.—Ella H. Yelder,* Margaret M. Jones, Eleanor Barratt.
- Kent County, Maidstone*.—Mona Jarrett,* Millicent V. Platt, Amy E. Smith, Evan M. Vinehill, Ada Chambers, Edith M. Nuttall, Ethel Webb, Emily J. Hursell.
- Hanwell*.—Constance E. Stephenson, Minnie J. Mallion.
- Long Grove*.—Catherine M. Erskine, Augustus F. Waylan, David I. Duke.
- Colney Hatch*.—Dorothy M. Bettridge, Emma Marshall, Charlotte M. Corfield, Margaret Stephenson,* Julia Scanlan.
- Claybury*.—Susan Harkin, Mary Hughes, Jenny Edwards, Mary Griffin, Nellie Williams, Florence R. Jordan,* Eliza E. Dungate, Laura L. Reeve.
- Cane Hill*.—Laura Pollard, Constance Stainer, Rossannah Marsh, Kate L. Robinson, Emily E. Illman, Adaline F. Wing, Florence E. Rogers, Florence E. Couchman.
- Banstead*.—Jane Barrow, Dorothy A. Fox, Edith M. Mallion, Ethel M. Wright, Nellie Hill, Margaret M. Dalton, Agnes A. Anderson, Mabel E. Bywater.
- Caterham*.—Mary A. Williams, Ethel F. Hobbs, Dinah F. Williams.
- Leavesden*.—Thomas H. Grundy, Ethel M. Webb, Kate Yelverton, Cecilia E. Mayes.
- Shrewsbury*.—Mary A. C. Harrison, Charlotte Evans.
- Staffs., Cheddleton*.—Bridgid Farrelly, Joanna J. Fitzgerald.
- Burntwood*.—Percy Nutt.
- West Sussex*.—Adeline Spiegelhalter, Frank Mayo, Harriet Arnold, Annie Stubbs.
- Hayward's Heath*.—Madge Hunter,* Maud C. V. K. Martin, Annie G. E. Hoxey.

Hellingly.—Rebecca M. Collins, Alice E. Lucas, Dorothy A. Steer, Josephine Dwyer, Agnes Brumbill, John W. Russell.

Barnsley Hall.—Sidney T. Phillips, Ellen A. Mathers.

Winson Green.—Sarah Brassington, Katherine H. Kendrick, Lilian M. Knox,* Nellie E. Fisher.

Derby Borough.—Ethel Boddington, Kate E. Jennings, Catherine A. Froggatt.

Gateshead.—Lily Lund.

Hull City.—Louise Brackenbury, Annie R. Allison.

Leicester Borough.—Maud M. Kellam, Maud M. Collier, Ethel M. Hickling, Ellen E. Ingram.

Camberwell House.—Lucy E. S. Rowdon, Daisy B. Bates, Dorothy S. Breem.

Bethlem.—Albert H. Joslin, Catherine R. Brown, Emily M. Burt, Maud Page, Grace R. Lowman, Dorothy Henley.

Coton Hill.—Elsie M. Ledger, Edith Davies.

St. Andrews, Northampton.—Henry J. Battrick, William H. Thistlethwaite, William S. Brown, Florence Woodford, Ruth Garnett,* Rose Clarke, Daisy Porter.

Fenstanton.—Elizabeth Mitchell, Louie Palmer, Emmie Dommett.

Holloway Sanatorium.—Violet A. B. Gresswell, Ellen D. Rea, John Meldrum.

Bootham Park.—Katie E. Taylor, John H. Darley.*

The Retreat, York.—Annie Jarvis, Christina McLauchlan, Mary E. H. Watson.*

Aberdeen District.—Jeannie Mackie, Margaret P. Robertson.

Aberdeen Royal.—Mary Ross, Helen J. Smith, Jeannie Clark.

Ayr.—Annie C. Soutar, Mary C. Watson, Selina McBryde, Jane W. Beaddie, Wilhelmina McBride.

Banff.—Jeannie Peters, Williamina L. Wilson, Davidina Denoon, Helen D. Stuart.

Crichton Royal.—Majorie Sidey, Jean Welsh, Christian S. Davidson, Isabella V. Watt, Mary H. Petrie, Joan B. Duncan.

Dundee Royal.—Helen Buist, Bessie M. Blyth.

Craig House.—Mary Irvine, Mary C. Hamilton, Agnes B. Ritchie, Maggie O. Elder, Janet Kinghorn, Jenny Stirling, Jeanne W. McDonald, Emma A. Glass.

Elgin.—Beatrice A. Browse, Jessie Craib.

Edinburgh Royal.—Jean M. Whitson, Jessie York, Jane M. Gardiner, Elizabeth Scott, Annie J. Lee.

Edinburgh District.—Annie E. Macdonald.

Gartloch.—Elizabeth P. Rae, Charlotte Curren, Christina B. Crosbie, Peter J. Clark.

Gartnavel.—Helen F. M. Duncan, Dolina Morrison, Agnes F. McKay, Catherine Maclean.

Woodilee.—Sophia McD. Smith, Margaret McEwan, William MacFadyen.

Hawkhead.—Joan Millar, Frances Lyon.

Inverness.—Margaret Mutch, Jessie McG. Campbell, Mary McDonald.

Lanark.—Marion Fitzsimons, Sophia Gibson.*

Melrose.—Agnes M. Macdonald.

Montrose.—Jessie Spalding, Annie P. Black.*

Murray.—Christina F. Stewart, Margaret L. Walker.

Riccartsbar, Paisley.—Mary T. Paul, Jeannie F. Emslie, Isabella Currie.

Stirling.—Nora Don, Katherine McLeod, Maureen Nangle, Janet D. Main.

Larbert Institution.—Mary B. Fraser, Alice L. Ormerod, Sarah W. Miller, May Shepherd, John Ferguson, Margaret Thompson.

Enniscorthy.—Lucinda A. Pierce, William Delaney.

Mullingar.—Matthew Murtagh, Bridget Maher, Joseph Rabbit, James Lyster, Agnes Murtagh, Patrick Creamer.

Londonderry.—Edward McGinty, Ailsa M. Brennan.

Omagh.—Mary E. Gallagher, Annie M. Brogan.

Portrane.—Hugh Kirwan, Mary E. Clarkin, Richard Breen, Kate A. Scully, Christina Nicholls, Annie Bourke.

Richmond.—Bridget Cummins, Nicholas Meehan, Thomas Fagin, Thomas P. Smyth, Eleanor Furlong, Mary Dempsey, Mary O'Connor.

Palmerston House.—James Maguire.

Bloomfield.—Sarie F. Gilbert.

Warwick County.—Evelyn Flaherty.

PRELIMINARY EXAMINATION.

Berks County.—Violet Ellen Wakeling, Ellen Ethel Hiatt, Beatrice Holliday, Edith Rust, Lucie Sara Darby, Gertrude Fanny Gregory.

Cumberland and Westmorland.—Ebenezer Johnstone Barton, Edith Esther Lancaster, Lena Hardy.

Essex, Brentwood.—Ethel Rose Pickett, Alice Feeney, Beatrice Alice Bleyard, Alice Porter.

Essex, Severalls.—Dorothy Rose Whilbourn, Elizabeth Ann Robinson, Ethel A. Kent, Kathleen Veronica Murphy, Alice Russell, Florence Annie Pitt, Henrietta Elizabeth Hood, Grace L. Mihill, Bertha Jones, Ethel Beakhurst, Dora Pearson, Winifred V. Taylor, Rosa Fisher, Mary Ellen Smith, Alfred Radley.

Glamorgan County.—Elizabeth M. Williams, Henry A. Murphy, Maggie Jones, Clara Ann Prew, Lizzie Myfanwy Davies, Elizabeth M. Harries, David Thomas, Thomas Ardwyn Lewis, Edith Gertrude Burroughes, Gertrude A. Price, Winifred E. Preece, Elizabeth Reynolds, Grace Love Griffiths, Elizabeth E. Jones, Thomas G. Hand, Jeremiah Daly, Tom Griffiths, Edward Byrne, Charles Winteringham.

Isle of Wight.—Vida Webber, Ivy Baker, Elsie E. Glew, Beatrice M. Message, Helena A. Bayliss.

Kent, Maidstone.—Annie Barnett, Ellen Cotter, Marjorie Leaver, Mabel Taylor, Nellie Jones, Lillian May Leverett, Robina Blair Kilgour, Eva Gladys Wood, Aziel M. Endacott, Clara Hawkes, Bessie Lowe, Mildred C. Tiver.

City of London.—Marion Johnston, Dorothy Clapham.

Cane Hill.—Florence M. Jarvis, Ethel F. Tucker, Rosa G. E. Brentnall, Caroline E. Taylor, Emily E. A. Amos, Laura L. Payne, Sarah M. Shepherd, Emily M. Woods, Maud A. M. Voller.

Epileptic Colony, Ewell.—Mildred Henley.

Hanwell.—E. E. Plumridge, Emily C. Manley, Frances G. Turner, Amy O. Gardner, Amy M. Brocksopp, Winifred M. Toms, Mary E. Dickens, Elizabeth Langston, Edith L. Knight, Alice Wilden, Mildred A. Rust, Esther G. Mason, Maggie Wright, Irene M. Earp, Edith Rowell.

Long Grove.—Laura M. Dyson, Evelyn V. Wolfe, Annie Rosena Keys, Annie I. Gould, Rose E. Dealey, Edith Clarke, Albert J. King.

Manor.—Gladys G. Smith, Alice M. de Mont, Lydia V. Hook, Florence M. Lake, Kate Louisa Longley, Dorothy M. E. Cross, Ellen R. Lynch, Rachel Vaughan, Amy Sallis, Winifred M. Donnellan, Lilian M. Thomas.

Colney Hatch.—Mabel E. Foster, Amy E. Janes, Alice N. Fenn, Emily Bodington, Yvonne R. Colin, Edith M. Tarr, Kathleen M. E. Shaw, Alice Taylor, Marjorie A. Watkins, Lois Root, Kate Green, Beatrice L. Dawe, Emily Ashton, Catherine Turner.

Fountains Temporary Asylum.—Edith Morrison, Edith H. Wright, Violet M. Hills, Beatrice M. Chapman, Clara Brighton.

Banstead.—Violet M. Taylor, Elizabeth A. Williams, Elsie E. Gill, Daisy M. A. White, Olive White, Charlotte Hooper, Naomi R. L. Langley, Ethel M. Sperring, Edith Wilkinson, Dulcibel Jeffery, Elsie M. Quick, Emily R. Hempsted.

Caterham.—Florence Ewer, Jean Young, Mary H. Bellingham, Mabel Williams, Lena A. G. Yeoman.

Leavesden.—Florence E. Murray, Laura Winifred Sanders, Grace E. Maurice, May G. Hickman, Rachel Gribbon, Winifred Cox, Evelyn M. Oliver, Mildred E. Neate, Lottie Hoath, Lucy Holmes, Eva A. Whittaker, Margaret Blew, Nellie E. Phair, Adelaide Rockliffe, Sarah Hill, Mary B. Protheroe, Elizabeth Marchant, Edith M. Coles.

Shropshire County.—Myfanwy Lloyd, Hilda S. Davies, Mary C. Rees.

Staffs., Cheddleton.—Lilian E. M. King, Florence A. Ledbury, Lily Noble, Gwladys Jones, Helen A. Findlay, Hilda A. Owen, Jessie M. Macdonald, Elsie Pollard.

Hayward's Heath.—Gladys Robson, Ellen M. Haysey, Amy Cox, Alice E. Harbord.

Hellingley.—Jessie Baker, Kate E. Dobinson, Marion Costigan, Winifred M. Keep, Mary M. Partland, Annie Riddle, Olive Baker, Doris M. G. Welford, Elizabeth Gibney, May Tindall, Annie E. Netley, Marion H. Burgess, Nora Powell.

West Sussex.—Arthur W. Riley, William H. Berry, Kate A. Charles, Olive A. Tribe.

Worcestershire, Barnsley Hall.—Annie Young, Pamela E. Baugh, Elsie M. Colley, Hilda W. Lucas, John Duffill, Harry M. Storr.

Canterbury Borough.—William Filmer, Bessie Newing, Alice I. Tumber.

Derby Borough.—Mildred A. Coulson, Jane Crook, Kate A. Devine, Lilian Goodall, Annie Hall.

Gateshead.—Jessie McK. Kennedy, Annie Murray.

Hull City.—Alice Marshall, Frances Clayton, Annie Ellison, Muriel Devereux, Clara L. Pearson, Floris E. Lloyd, Blanche Froggett.

Leicester Borough.—Miriam Hills, Elizabeth Stanley, Ethel M. Richardson, Alice E. Whomsley.

Sunderland Borough.—Barbara Laybourn, Jane Curry, Violet Lockey, Beatrice M. Selbey, Ronald W. G. Dean, Kathleen Cassidy.

Bailbrook House.—Mildred A. Crocker.

Bootham Park.—Emily H. Lambert, Isabel K. Young, Amy Walker, Ida Earless, Florence E. Willey, William A. Hopwood.

Camberwell House.—Ellen M. Froud, Dorothy K. Wood, Beatrice Richards, Edith C. Jordan, Grace E. Luckhurst, Margaret Stephens, Adelaide G. F. Hart, Emma M. Harden.

Coton Hill.—Salome Price, Elinor Annie Owen, Elizabeth M. Jones.

Hunstanton.—Hilda E. Parr, Georgina Longman, Edith M. Wooldridge, Edith Earls.

Holloway Sanatorium.—Ethel C. Holdaway, Catherine Tjebbes, Dorothy A. Brewerton, Maria Leonie Boussier, Brenda H. Peters.

St. Andrew's.—Ida M. Wade, Hilda M. Pears, Katie M. Potter, Florence R. Biffen, Louis Botterill, Phyllis R. L. Brown, Ethel Cosford, Alice Webb.

St. Luke's.—Violet A. Birks, Edith M. Tugwell, Ethel R. Smith, Ellen M. Ashbury, Myfanwy Jenkins, Ada F. Jones, Martha A. Morse.

Warneford, Oxford.—Marion G. Green, Emma L. Allard, Nettie Noble.

York, Retreat.—Ada Margaret Ellis, Minna A. S. Samuel, Isabella M. Huggard, Nina M. Weighell.

Aberdeen Royal.—Jemima Craig, Helen Forbes, Dorothy McHardy, Mary McRobbie, Elsie M. Minty, Minnie Taylor.

Argyll and Bute.—Grace C. B. Garrow, Margaret F. Campbell, Malcolm Turner.

Ayr.—Grace Mitchell, Agnes Wilson, Rachel Macmillan, Margaret O. McGill, Margaret Y. Chalmers.

Crichton Royal.—Francis W. J. Anderson, Lawrence Watts, Robert Neill, William M. Fraser, Elizabeth Black, Mary F. Edgar, Margaret D. Eadie, Sarah E. Johnston, Mary Macdonald, Annie Wilkie Smith, Annie Wright, Annie Browne, Victoria Shelborne, Agnes Liddle Moffatt, Elizabeth Bruce, Janet D. G. McDowall, Barbara McMorran, Ethel McLennan, Mary S. McCartney, Mary H. Currie, Margaret Cameron, Agnes W. L. Ednie, Jessie Sidney, Jessie A. Bowie, Mary Munro, Janet R. Murray, Jean A. S. MacLeod.

Dundee Royal.—Jean A. Smith, Victoria C. Knowles, Annabella Simpson, Margaret B. Penman, Margaret Harper, Jeannie Car, Mary Duffie, Mina Lovie.

Craig House.—Annie H. H. Lawrence, Isabella Campbell, Jean Davidson, Mary T. Brady, Margaret H. Shaw, Elsie C. Gentil, Davina Hepburn, Mary R. Robertson, Edith W. Clelland, Mary E. Shearer, Suzanne G. Crilley.

Edinburgh Royal.—Mary Fraser, Christina B. Donaldson, Sarah M. Richmond, Muriel M. Pond.

Edinburgh District.—Caroline C. Watson, Kathleen A. Kane, Catherine McInnes, Isabella Mackenzie.

Gartloch.—Agnes E. Anderson, Agnes R. Scott, Allison R. Russell, Mary Taylor.

Gartnavel.—Isabella Eadie, Annabella Finlayson, Annie Marshall, Annie N. McGuire, Catherine McKerchar, Williamina Seggie, Rachel W. Stein.

Woodilee.—Patrick McGlynn, Mary McFatter, Marion Lithgow, Isabella Hughes, Mary Denny, Margaret B. McLean, Elizabeth McNeilage, Annie J. Mack. Macpherson, Ellen Devins, Rose A. McLaughlan, Jeanette McLennan.

Haddington.—Catherine Graham, Jeannie McBain.

Hawkhead, Paisley.—Jane Mackinnon, Margaret G. Brown.

Inverness.—Maria S. Sutherland, Sarah McNab, Johan Fraser, Margaret Campbell, Jessie MacLachlan, Margaret Nowery.

Lanark.—Mary Singer, Georgina Campbell, Mary McCulloch Aitken, Dorothy Cooper, Mary Ketchen, Flora McDougal Baillie, Annie Davis Clifford, Thomas Prentice.

Melrose.—Alexander Bruce, Charles Cowie, William J. Ingram, Peter Sinclair, Elizabeth McIntosh Forbes, Agnes Neil Mitchell, Janet McGlashan McKinnan, Ethel Palleser, Ann Sinclair, Lizzie W. C. P. Webster.

Midlothian.—Maimie F. Low, Charlotte Manson, Jean Martin White.

Montrose.—Agnes S. S. Smith, Margaret Potter, Julia Brown, Margaret C. Munro, Elizabeth D. Gibson.

Paisley, Riccarton.—Mary Coburn Douglas, Isabella Duff.

Perth District.—Mary Taylor, Elizabeth L. Alexander, Jessie A. Fraser, John Fraser.

Murray, Perth.—Jean McDonald, Lizzie A. Wilson, Mina de H. Estcourt, Elizabeth McLean.

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St. Patricks.—Eva Marcella Smyth, Stasia O'Loughlin.

Waterford.—Catherine Neary, Anastasia Flynn, Hanna Carroll, James Maher, William Gallagher, Richard Barry.

Bethlem Hospital.—Fred Ernest Wallen, Gladys F. M. King, Eveline M. Hinds, Sybil E. Burleigh.

Warwick.—Eva Florence Stroud, Mabel Tompkins, Katie Fleming, Annie E. Dimond, Kathleen Carlos, Elsie Jones.

OBITUARY.

G. T. HINE, F.R.I.B.A.

THE list of Honorary Members of the Association has suffered a sensible loss by the death of Mr. G. T. Hine, F.R.I.B.A. That list has been designedly restricted to our medical colleagues, and has been almost entirely barred against laymen. The laymen admitted since the institution of the Association can be reckoned on one hand. The sole essential condition on which this exclusiveness has been waived is successful endeavour in pursuing one of the three cardinal objects of the Association—"the improvement in the treatment of the insane." In Mr. Hine's case it would be impossible for anyone, however critical, to deny that the lot of the insane is a good deal happier since he devoted his marked talent to their better housing.

When one speaks of an architect's ability the mind naturally exercises itself first about his power to give an imposing and artistic *cachet* to a pre-ordained structure. In this direction Mr. Hine was entirely circumscribed by forced economy on the part of his employers. He had no chance of designing masses of buildings for the insane in the magnificent style sometimes adopted outside his own sphere of action. Nevertheless he was very successful in producing satisfactory piles, which were always neat and never offensive to the eye; some indeed are striking. When one thinks of the huge masses, necessarily plain and often much reduplicated, which he had to throw together in such fashion as to avoid unwieldy ugliness, it may be rightly claimed that his work in the artistic direction was as excellent as it could be. In another direction, that of securing fair pleasingness combined with appropriate usefulness, Mr. Hine was equally successful. He adopted a very safe course in framing estimates, placing his calculations, if anything, a trifle above expectation, with the result that those estimates were very rarely exceeded, apart from unavoidable variation in prices brought about by external agencies. If the committee liked to increase their requirements, the excess in cost rested with them.

With regard to that duty of an architect—the production of a building that would answer its purpose to the full—Mr. Hine was abundantly successful. He had the good fortune to take up his work just at the time when the care of the insane was commencing to take on a scientific aspect. We can see, in the costly rebuilding of the lightless, airless barracks which did duty for asylums before that time, the effects of the want of science. When it became evident that the requirements of hygiene and scientific treatment called for special provision, the building of the asylum became a special study, and the way was open for anyone who chose to devote himself to the specialty. If Mr. Hine cannot be deemed the originator of the art in the form in which it now is, and as far as we know there is no one to deny this credit to him, he was at least a most competent exponent. The principal features which can be traced in his chief work may be given as follows: First, the arrangement of the wards or blocks round a common administrative centre, so as to secure a minimum distance between centre and periphery. This resolved itself naturally into the shape of a bow or half-wheel. The disposition of the component blocks offers a variety of treatment, whether in echelon or continuous, all requiring a certain amount of partitioning off from one another, combined with means of ready access from each to its neighbour. Much ingenuity was required in securing these objects. Then followed the designing of detached "hospital blocks," the demand for which was, of course, created by medical thought. Mr. Hine also designed in happy usefulness some novel houses or villas for low-grade children and idiots. Another medical suggestion found ingenious and successful treatment at his hands. We refer to the arrangements by which male wards can be nursed by females to a greater or less extent, as might be found desirable. His art in these directions did not come all at once, it had been built up by degrees, mostly on experience renovated by experience, and here arose the mutual benefit which came from Mr. Hine's intimate association with our body and its members. Both sides benefited, for, while he listened with advantage to private or public conversation on medical requirements, the medical element was encouraged to evolve useful betterment by the knowledge that there was one at hand who could put them into being. Mr. Hine was most sympathetic in such matters, and always ready to take any amount of trouble to work out a suggestion, if possible.

We think that it would not be unreasonable to claim that Mr. Hine has founded a distinct school of asylum architecture. Below will be found a list, possibly not exhaustive, of those asylums for the building of which he was responsible. If asylums built by other hands can be found which by their dispositions might seem to invalidate such a claim, one can but say that the plans of any asylum have been easily obtainable, and further, that the similarity of design is but a compliment to Mr. Hine.

Personally Mr. Hine was something more than an Honorary Member to many of us. He was a rare companion, full of information, always ready for a jest, but possessing that modest quasi-deferential manner in asylum conversation belonging to the strong and industrious mind which is perpetually waiting on the wisdom of fools.

Mr. Hine's name and memory, as part of the Association, are preserved to us in the person of his son, who is with the R.A.M.C. on bacterial work. Mr. T. G. M. Hine has been a member for ten years.

Asylums built by Mr. Hine: London County—Claybury, Bexley, Horton, Long Grove; Gateshead, Hampshire (second asylum), Hertfordshire, Kesteven, Merthyr, Sunderland, Surrey (Netherne), Sussex Cent. (Hellingly), Swansea, Worcestershire (Barnsley).

Several other asylums were added to or altered by Mr. Hine, *e.g.*, Dorset, Cotford, Moultsford, St. Albans, Wilts, Leicester.

BALLINASLOE ASYLUM.

THE Inspectors' report on certain occurrences which took place in the above asylum, as published in the April number of the Journal, has led to a rather anomalous condition of things, as will be seen from the following extract from the pages of the daily Press:

BALLINASLOE ASYLUM INQUIRY.

Dr. T. J. Considine and Dr. Wm. Dawson, Lunacy Inspectors, attended at Ballinasloe Asylum to hold an inquiry as the result of a report which they had made as to the treatment of some patients in the institution.

Dr. Comyn, solicitor, said he had advised his clients, the Matron and the staff, to decline to give evidence. The Court of Inquiry should be an independent tribunal.

Dr. Considine said the inquiry was called for by the Asylum Committee, and they had power to hold it. Those who declined to be examined did so at their peril.

Dr. Kirwan, R.M.S., was first called, and said on the advice of his solicitor he declined to give evidence.

The Matron and the other members of the staff did likewise.

Dr. Ada English, Acting R.M.S., said she was told when taking up the position that it was not her duty to visit the female side. She agreed with the Inspectors' report. She did not remember giving permission to put the patients to sleep on straw.

Dr. Murnane said he saw the patients lying on straw, but he gave no permission for its use. He never knew that the patients were naked.

This concluded the inquiry.

CORRESPONDENCE.

ROYAL MEDICAL BENEVOLENT FUND.

To the Editor of THE JOURNAL OF MENTAL SCIENCE.

DEAR SIR,—The Royal Medical Benevolent Fund, the great Benevolent Society of the medical profession, is sorely in want of money now.

Though in ordinary times the medical profession supports its own poor, in these war times this is no longer possible. At the May meeting the Committee had a balance of only £17 in hand, and at the June meeting was faced with a deficit of £16. The demands were heavy and had to be met, and this could only be done by withdrawing £500 from the bank.

As the direct outcome of the war, not only are the ordinary cases of poverty greatly increased in number, but an entirely new class of case has arisen urgently requiring relief, in which without actual poverty there is great temporary distress, distress, however, which it is hoped will relieve itself soon after the war is over and the doctors serving return to their civil duties.

At the outbreak of war the medical profession responded freely to the Nation's call. The Territorial Medical Officers were at once called out, and other medical men volunteered. Both alike had to leave their practice at very short notice, and often without being able to make adequate provision for its continuance and maintenance during their absence. Their pay went but little way to supply the loss which their absence entailed, for the working expenses of the practice could

not be materially reduced. The result was that many families found themselves in very straitened circumstances. Rent, rates, and insurance brook no delay; but, worst of all, school bills could not be paid, and if help had not been quickly forthcoming, the children would have suffered for the patriotism of their father.

The following are typical of the cases with which our Fund has had to deal:

A young doctor, who had only been in practice a few years, volunteered for service, and was killed in action a few days later. He left a widow, æt. 35, with two young boys, æt. $3\frac{1}{2}$ and 1 year, entirely without means. The Fund voted £25 for her immediate necessities, and put her into communication with the Officers' Families Association, which gave further help.

A practitioner, æt. 38, earning £700 to £800, volunteered for service, leaving his practice in the hands of a neighbour, who was not a success. There were two young children, and another baby was born shortly after the husband left. The wife contracted pneumonia and nearly died. A resident patient had to leave the house. Rent and other expenses led to a debt of about £80. This the doctor could not meet, and he hurried back from the trenches to save his home from being sold up. The Fund voted £25, the Guild gave £15, the Officers' Families Association £25, and the Professional Classes War Relief Council further help, with the result that he returned to the Front with his immediate anxieties relieved.

A captain in the Territorials was called out and had to leave his practice in the hands of a *locum*, who proved a failure. There were seven children, æt. 2 to 14. Financial difficulties arose, and payment of the school fees became impossible. Between the Fund and Guild and Officers' Families Association, the necessary fees were raised, and clothing, which was greatly required, provided.

These cases show well the way in which the Fund works, not only by giving relief itself in money and kind, but also by obtaining through co-operation with other benevolent Societies more substantial assistance than it could afford alone.

But there is another class in which the distress is perhaps even greater, and adequate relief more difficult. It is that of men who left home and a good practice in vigorous health and who have come back, crippled by wounds or with health impaired, to a practice severely damaged by their absence, and without the strength or energy to regain the practice and position which they sacrificed.

Our Fund has set apart a special sum to meet emergency claims of this kind, yet the demands are so great that it will soon be exhausted. We cannot now rely on the profession alone to supplement it largely, for the medical profession, like all other professions, is hit very hard by the war, and has no longer its old resources to draw upon.

What is required is an Emergency Fund large enough to deal adequately with these emergency cases arising directly out of the war, and for this we are driven to appeal to the public as well as to our own profession.

We trust that our appeal will meet with a liberal response both from the public and from the medical profession, for unless fresh funds are quickly forthcoming it will be impossible to continue the relief which is so urgently required.

We are,

Faithfully yours,

JOHN TWEEDY, *President.*

SAMUEL WEST, *Hon. Treasurer.*

G. NEWTON PITT, *Hon. Secretary.*

11, Chandos Street,
Cavendish Square,
London, W.
July 3rd, 1916.

NOTICE TO CONTRIBUTORS.

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THE JOURNAL OF MENTAL SCIENCE

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Part I.—Original Articles.

Mental Disabilities for War Service. By SIR GEORGE
H. SAVAGE, M.D., F.R.C.P.Lond.

GENTLEMEN, in providing this paper I have felt many difficulties, for, while wishing in no way to protect shirkers, I wanted to avoid sending men into the army who were almost certain to break down under training, or at the front.

I meet a good many London doctors, who have little experience of mental disorders, who act on the idea of giving the man a chance. As you know it is at times worth running some risk with mental patients: a complete change in mode of life may turn a hypochondriac into a useful worker. But in taking risks one must see on whom the risk falls.

I see patients who might serve as subordinates, but on whom no personal responsibility must rest.

I was first impressed with the importance of the subject when visiting, with Major Miles, Block "D" at Netley, where, as he pointed out, there were many men who ought never to have been enlisted. Such men involved considerable trouble and anxiety as well as cost to the nation. Later, as consultant to Lord Knutsford's homes for officers, I saw other men who were quite unsuited for the positions in which they had been placed. And, finally, I have had many old patients and their relations who have consulted me as to their fitness for military service.

VOL. LXII.

42

As a result chiefly of my experience with this last group, I purpose placing before you my views on the subject.

First, as to men who have already had at least one attack of insanity. As these are all under middle age, hereditary predisposition must influence one's judgment.

I as a rule oppose the enlisting for active service of any young man with direct insane inheritance, who has had an attack of well-marked mental disorder within a few years which required detention.

Some of these men are quite fit for home or munitions work.

Often another difficulty arises. The previous breakdown is unknown to companions and employers, and these look upon the man as a shirker or coward, and may let him know their opinion. I have seen several such patients who were becoming unstable because of the idea that people mistrusted them, and I have even decided to run the risk of enlisting some of these men, as I felt that there was a real danger of their developing delusional insanity with auditory hallucinations.

I have seen a very large number of men who have suffered from previous nervous or mental disorders, in whom the struggle as to what was their duty has produced various forms of mental disorder of a functional character.

One strong, hearty fellow came into my room and at once burst into tears. He was heartily ashamed of this outbreak, but no sooner did he begin to describe his other symptoms than he broke down again. He was sleepless, unable to fix his attention, and I judged him unfit for military training.

In another case—and he represents a special group which I recognise—the patient, who some years before had been unable to follow any definite training for a profession on account of instability, was sent to me as a case of adolescent mental weakness associated with onanism. Out-of-door occupation restored him, and he was able to earn a living; but when the question of enlistment arose, once more all power of making up his mind failed. He was distracted and depressed. He could not sleep, and felt his brain in a state of whirl, so that he could not decide on or start at anything. He was agitated and threatened suicide, as he felt he should go out of his mind if he was called upon to perform duties for which he was unfit.

In another case with a similar history, and with a story of neuropathic heredity, a few years in Canada seemed to have established his ability, and he joined the Canadian contingent ; but after a few months' service all the old troubles recurred, and it was a question whether he could be safely treated out of an asylum.

Such cases are suffering from *folie de doute*.

Here I may refer to the recurrence of symptoms of mental disorder in those so-called shock cases. I have seen so many of these patients who, having to all appearances recovered, break down on return to active service. None of these cases should go back to service under six months.

I have met a certain number of cases of simple mental defect in which the weakness, which is often masked, has not been recognised by the examining doctor.

Thus, some years ago I was consulted about a youth who could not be educated in the ordinary way. To begin with, he had a total want of understanding numbers and their relations, he seemed quite unable to remember any abstract thing, and though he could copy, he could originate nothing. He enlisted, but was considered wilfully obstinate and stupid ; but punishment did no good, and I did my best to get him out of the army.

A more difficult group of defectives has been seen by me, and as a rule I let them run their risk of enlisting. Thus, in the case of one man, about whom I had been consulted when he was at school for his lying and pilfering ways, no treatment did any good, and perhaps he may make a useful fighter.

Still another difficulty has arisen in relation to homosexuality. I have met several men who, without being actual offenders, have caused trouble by their unnatural attachment to companions. In two cases the friendship grew into an obsession, and apart from the companion the man was depressed, suicidal, and professionally ineffective. Now what could one do with such a one ?

I have met a few cases in men already in the army who undoubtedly were suspicious almost to madness before the war, but who later became definite paranoiacs. In the Boer war I saw such a one who was sent out in command of a cavalry regiment. From Africa he sent a very mad telegram to me ordering me to stop the persecutions from which he was

suffering. He was sent back to England, and for a time was under control, but again he wants to be sent out to active service.

I have seen several patients who had suffered from slight but undoubted attacks of *petit mal*. Some of these were anxious to serve, but, of course, I opposed enlistment on active service.

It is interesting, however, to recognise a form of functional epilepsy which may follow shock or injury. I have met several cases of men who, as the result of psychic strain or shock, lose consciousness for short periods, and yet when removed from strain they recover, but relapse if sent back to duty.

There are some cases in which one has to act on one's experience even in opposition to appearances, and perhaps in opposition to the authorities. There is a young man of very high education, a public school and university man of conspicuous ability, who at the end of his university career collapsed mentally, and for over two years was in mental stagnation. He lived a simple labourer's life on the land, and slowly recovered and became physically and intellectually healthy, yet, knowing his past and gauging his present state, I decided that he was quite unfit for trench life. I have opposed the enlistment of confirmed somnambulists.

I should oppose the enlistment of certain men who have hallucinations, though I recognise that some such manage to live fairly normal lives out in the world.

I have met with several rather peculiar cases of obsession.

In one a fine, healthy-looking young man of thirty consulted me under the following conditions. He is a manufacturer, and some years ago he was in a railway accident. Since that time he has never been in a train, and the very fear of a train almost distracts him. He was greatly excited at the fear of having to travel by train. I remembered having seen his mother, who was in an asylum for some time suffering from melancholia. I decided against his serving.

I have seen two men who, from adolescence, have been unable to micturate except in private, and I have also heard of others who have had to leave the army because of this disability. It seems impossible for such men to live camp life. Perhaps hypnotic suggestion might relieve some of

them, but I have met some who had been thus treated without any good resulting.

A large and important class may be called the syphilitic group. In this I place the general paralytic, the ataxic, and some para-syphilitic cases. Directly one is consulted by a middle-aged man for vague and uncertain nervous symptoms nowadays one not only asks if the patient has had any venereal disease, but one is not satisfied unless there is negative Wassermann reaction. I have met with several cases in which the history of syphilis was comparatively recent, and therefore the symptoms were treated as possibly removable, and these have done well. Very many cases of early general paralysis have occurred in the army, and the life of anxiety was just the one likely to start the more active symptoms. It is hardly necessary to say that no man with a clear history of nerve degenerative symptoms related to syphilis should be allowed to enter the army, but there are some of the patients whose symptoms are recent, and who after treatment may be allowed to enter the service.

*The Compluetic Reaction (Wassermann) in Amentia:
an Original Study of 100 Cases.*⁽¹⁾ By HAROLD
FREIZE STEPHENS, M.R.C.S., L.R.C.P.

ALL the experiments for this investigation were carried out by me in the Bacteriological Laboratories at Guy's Hospital, and my thanks are due to Dr. Eyre, the Director, for having placed every facility at my disposal, and to Dr. Ryffel, the Chemical Pathologist, for his advice and assistance. I am also indebted to my Board of Management and to my Medical Superintendent, Dr. Caldecott, for their courteous permission to undertake this investigation in the case of patients resident under their care at the Royal Earlswood Institution, at Redhill, in Surrey.

A foreword is, perhaps, necessary in explanation of the title I have assumed for this paper, a title for which I beg your kind indulgence. By the "compluetic reaction" I mean the "Wassermann reaction." It ought never to have been called the "Wassermann reaction," for, as everybody should know,

and as our President has placed on record in his communication to the late Royal Commission on Venereal Diseases on this subject, not Wassermann, but the Belgian Professor Bordet was the first to "discover," to study and "establish" the essential principle of the test. As England to-day is at war for justice and fair play, it is only meet and right and, perhaps, our bounden duty that the Belgian should come to his own again! The proper name for the "Wassermann reaction" is the "Bordet-Gengou phenomenon in syphilis," but, although this is rightly its proper name, such a designation, however romantic the association of the things discovered with the names of their discoverers may be, is nevertheless not quite correct. For it is but a mere truism to maintain that natural processes exist and are not made; they always were and will be, in spite of their discoverers; and it is with the things themselves that science is concerned. The more correct phraseology, therefore, would be "the complement-fixation or deviation phenomenon in syphilis." For this rather cumbrous expression I have taken the liberty to make the simpler term the "compluetic reaction," coining the word "compluetic" from the two words "complement" and "luetic," and as such I beg leave to submit it to your courteous and generous consideration.

This paper is divided into two sections :

- (A) A summary of the technique employed in the experiments.
- (B) An analysis of the results obtained thereby.

(A) THE TECHNIQUE EMPLOYED.

The technique employed was that in current use at Guy's Hospital. It may be briefly summarised under the following three heads :

- (1) The reagents used in the test.
- (2) The preliminary preparations for the test.
- (3) The test.

The Reagents.

As is well known, the reagents required for this test are :

- (1) Antigen.
- (2) Reagin (blood serum or cerebro-spinal fluid).

- (3) Complement.
- (4) Hæmolysin.
- (5) Erythrocytes.
- (6) Saline solution.

The materials used in my experiments were as follows :

(1) For *antigen* a 1 in 10 saline solution of an alcoholic extract of human congenital syphilitic liver.

(2) For *reagin* only the blood sera were used. The sera were obtained from the peripheral blood of the patients. They were used undiluted.

(3) For *complement* a 1 in 10 saline dilution of fresh guinea-pig's serum.

(4) For *hæmolysin* a 1 in 20 saline dilution of the hæmolytic sera of rabbits immunised against human red blood corpuscles.

(5) For *erythrocytes* a saline suspension of fresh human red blood corpuscles, obtained always independently of the bloods to be examined, and diluted 100 times (1 in 100).

(6) A 0.9 *per cent. saline solution*, freshly made and sterile, was used for all dilutions in the test.

It may not be out of place here to note the following facts concerning the reagents :

(1) *Antigen*.—The strength and properties of a good antigen tend to remain constant. Its characteristics must, however, be redetermined and confirmed from time to time by testing the antigen against known syphilitic reagins. This practically consists in the performance of a test in which all the factors are known except the strength and properties of the antigen. The antigen used in my experiments had been used in the routine performance of many thousands of tests, in all of which it was proved to be neither hæmolytic nor anticomplementary, but truly antigenic in its properties.

(2) *Reagins*.—These were always tested against and compared with known "positive" and "negative" sera as "controls."

(3) *Complement*.—As is now fully recognised, the complement is the most important factor in this reaction, but unfortunately it tends to degenerate very easily. The strength of the complement therefore varies, and must be determined daily immediately before the tests are performed. The strength of the complement is best expressed in the terms of what is known as the minimal complementary dose (the

"M.C.D."), the daily determination of which is one of the preliminary preparations for the test and will be described later. By means of the M.C.D. a scale of gradations can be obtained whereby what may be a purely qualitative test can be converted into a quantitative reaction. At Guy's Hospital both the qualitative and quantitative methods are in daily use. In every one of my cases, however, two minimal doses of complement were always employed, for by experiment I found that both from the qualitative and quantitative standpoints two minimal complementary doses were sufficient for each of my cases, a greater dosage resulting in the presence of an excess of complement, and, therefore, in the production of error. It is necessary to emphasise the amount of complement employed, as results with this test from the quantitative standpoint are only of value when expressed in terms of the M.C.D., from which it follows that, in my series of cases, even the definitely positive reactions are quantitatively very feeble.

(4) *Hæmolysin*.—The hæmolysin tends to remain constant. The strength of the hæmolysin is also best expressed in terms of what is known as the minimal hæmolytic dose (the "M.H.D."). The M.H.D. for any given brand of hæmolysin therefore tends to remain constant. The M.H.D., however, should be confirmed from time to time in the manner of the method described later.

The Preliminary Preparations.

The compluetic test, it will be remembered, is an attempt to ascertain whether a given serum in the presence of syphilitic antigen is able to "fix" complement, that is, to de-ionise it, to rob it of its oxydases, and so to render it inactive. The test is not only a means of ascertaining whether a given serum can "fix" complement, but also how much complement it can so render inactive. The test is therefore both qualitative and quantitative. It is a means of ascertaining not only the *fixation ability*, but also the *fixation capacity* of the tested serum.

Now in order to be able to "fix" complement, the given serum must contain syphilitic reagin—*i.e.*, the syphilitic "antibody." Therefore the test becomes limited to ascertaining whether a given serum contains syphilitic reagin and if so

the quantity of syphilitic reagin it contains. Thus, in my series of cases, I was able to determine that a certain proportion of the sera examined did contain syphilitic reagin, and that the reagin so contained was invariably in small quantities, being always enough to utilise two minimal doses of complement. To effect these determinations the method employed, as will be remembered, is :

(1) To free a given serum of any complement it will naturally contain—*i.e.*, to “inactivate” it.

(2) To add to a measured quantity of inactivated serum a measured quantity of antigen.

(3) To add to this mixture a measured quantity of fresh complement.

(4) A certain specified time is then allowed for these three substances to interact, and at the end of this time—*i.e.*, usually after one hour in the air incubator at 37°C .—the presence of “free” complement is looked for by means of a delicate “colour indicator.” If “free” complement is then found to be present, the serum does not contain syphilitic reagin, and is said to be “negative.” If, however, “free” complement is found to be absent (the added complement being “fixed”), the serum does contain syphilitic reagin, and is said to be “positive”; the degree of its “positivity” being determined by the quantity of added complement that has been “fixed.”

Such is the test. Its practical value depends upon the delicacy of the “colour indicator,” whose efficiency, in its turn, is dependent upon its ability to detect the smallest traces of complement. Therefore it will be seen the preliminary preparations for the test are three in number :

(1) The preparation of the reagin.

(2) The preparation of a delicate colour indicator.

(3) The determination of the smallest amount of complement that can be detected by means of this “colour indicator.”

These preliminaries will now be considered.

The Preparation of the Reagin.—In all my cases each specimen of blood for examination was taken from the peripheral circulation, about 5 c.c. of blood being withdrawn with aseptic precautions from the median basilic vein. Each specimen was allowed to clot, and the serum collected. The serum was then divided into two equal portions. One portion was heated by being placed in a hot-water bath at 56°C . for half an hour (*i.e.*,

"inactivation by heat"). The other portion was kept at room temperature for four days before being tested (*i.e.*, "inactivation at room temperature.") The reason why each serum was divided into two portions, one being heated, the other not, is as follows: Every syphilitic serum is supposed to contain two substances, complement and syphilitic reagin. (antibody); "inactivation by heat" eliminates the complement, leaving reagin for the purposes of the test. But many workers at Guy's Hospital in a long experience of many thousands of cases have found that heat also tends to damage these syphilitic reagins, some more intensely than others, so that a possibly positive serum may declare itself as negative. It has therefore been the practice at Guy's Hospital in all cases of doubtful reactions to re-test the serum, unheated, and after keeping for four days at room temperature. In my 100 cases, however, I have methodically pursued the double purpose, systematically dividing each serum into two equal portions, and regularly examining these after "inactivation by heat," and after "inactivation at room temperature." The outcome of this procedure has been that the results differed in fourteen of my 100 cases. Of these fourteen cases, four were negative heated, weakly positive unheated; ten were negative heated, definitely positive unheated. The results in all the other cases agreed both with the heated and the unheated portions of the sera. By testing the unheated sera in every case I was able to confirm the results obtained with the heated sera, and *vice versa*. Against the method of "inactivation at room temperature" it might be urged that normal sera tend to become positive on keeping, because of the factor of hydrolysis, which will naturally set free fatty and amino acids in the serum, an excess of such molecules having a decided anticomplementary action. But such a tendency would have been present in every one of the 100 sera examined, and yet in only fourteen cases did the results differ. Moreover, all these fourteen cases did not occur on the same day, under the same conditions of atmospheric pressure and temperature; and a further examination of the records showed that one occurred in a set of four, two occurred in a set of five, two occurred in a set of eight, four occurred in a set of eight, one occurred in a set of twelve, one occurred in a set of thirteen, and three occurred in a set of fourteen. So that the factor of hydrolysis does not seem wholly to explain why

under the same conditions more positive results should not have occurred.

The Preparation of the "Colour Indicator."—In the preparation of a delicate "colour indicator" for this test, advantage is taken of the well-known fact that in the presence of complement and hæmolysin red blood corpuscles are destroyed, the hæmoglobin escaping to colour the medium; but that in the absence of complement no hæmolysis occurs. On the basis of this fact a mixture of hæmolysin and erythrocytes is prepared. By this mixture the hæmolysin combines with the red cells and is said to render them "sensitive" to complement. The mixture is therefore called "a suspension of sensitised erythrocytes." In the actual making of the "sensitised erythrocytes" two stages occur: (1) The determination of the minimal dose of hæmolysin that with complement will produce in a definite period complete hæmolysis of the smallest convenient quantity of red cells; (2) the mixing of the components in these proportions.

The Determination of the Minimal Hæmolytic Dose.—The reagents required for this determination are: (1) A 1 in 20 saline dilution of hæmolysin; (2) a 1 in 100 saline suspension of fresh human erythrocytes; (3) a 1 in 10 saline dilution of fresh guinea-pig's serum; (4) saline solution (0.9 *per cent.*). The method is as follows: A series of small test-tubes are taken, marked A, B, C, etc. Into each of these are placed diminishing quantities of the diluted hæmolytic serum, thus: 0.10 c.c., 0.08 c.c., 0.06 c.c., etc. Then 0.50 c.c., the smallest convenient quantity, of the erythrocyte suspension is added to each tube, followed by the addition of an excess of complement, usually four minimal doses. Each tube is then filled with saline to a total volume of 1 c.c. The following example is appended as an illustration:

	Test-tube A.	Test-tube B.	Test-tube C.	Test-tube D.
Hæmolysin (1 in 20) ...	0.10 c.c. ...	0.08 c.c. ...	0.06 c.c. ...	0.04 c.c. ...
Erythrocyte suspension (1 in 100)	0.50 " ...	0.50 " ...	0.50 " ...	0.50 " ...
Complement (1 in 10), four doses	0.20 " ...	0.20 " ...	0.20 " ...	0.20 " ...
Saline solution (0.9 per cent.)	0.20 " ...	0.22 " ...	0.24 " ...	0.26 " ...
	<hr/> 1.00 c.c.	<hr/> 1.00 c.c.	<hr/> 1.00 c.c.	<hr/> 1.00 c.c.

The tubes are placed in the air incubator for one hour at 37° C. The minimal hæmolytic dose (the "M.H.D.") is the minimal amount of hæmolysin giving complete hæmolysis of 0.5 c.c. of erythrocytes after incubation in the air incubator

for one hour at 37° C. In the above example the minimal amount of hæmolysin producing complete hæmolysis was found to be 0.08 c.c. (in test-tube B). Therefore the M.H.D. for the 1 in 20 saline dilution used was taken as 0.08 c.c.

The Preparation of "Sensitised Erythrocytes."—In the preparation of the "sensitised erythrocytes" used in my test, four minimal doses of the 1 in 20 saline dilution of hæmolysin were taken for each 0.5 c.c. of the 1 in 100 suspension of red cells. These proportions were used because in actual practice an excess of hæmolysin is found to be necessary on account of the varying numbers of red cells in each 0.5 c.c. of suspension, the varying capacity of the cells for combining with hæmolysin, etc. Thus if the M.H.D. were 0.08 c.c., the recipe for the preparation would be written as follows :

B.	Erythrocyte suspension (1 in 100)	0.5 c.c.
	Hæmolysin (1 in 20), four times 0.08 c.c. (the M.H.D.)	0.3 "
		<hr/> 0.8 c.c.

Mix as much as is required in these proportions, and let the suspension stand at room temperature for fifteen minutes at least. For each dose of "sensitised erythrocytes" 0.8 c.c. of the above mixture is used.

The Determination of the Minimal Complementary Dose.—The "colour indicator" having been prepared as above, the next step is to find the smallest quantity of complement that will produce complete hæmolysis in a definite time of the estimated dose of "sensitised erythrocytes." The reagents required for this determination are : (1) A 1 in 10 saline dilution of the complement to be tested ; (2) "sensitised erythrocytes" ; (3) saline solution (0.9 *per cent.*). The method is as follows : A series of small test-tubes is taken, marked A, B, C, etc. Into each of these tubes diminishing quantities of the diluted complement are placed, thus : 0.09 c.c., 0.07 c.c., 0.05 c.c., etc., and then to each tube the dose of "sensitised erythrocytes" already estimated is added. Each tube is then filled with saline to a total volume of 1 c.c. The following example is appended as an illustration :

	Test-tube A.	Test-tube B.	Test-tube C.	Test-tube D.
Complement (1 in 10)	0.09 c.c.	0.07 c.c.	0.05 c.c.	0.03 "
"Sensitised erythrocyte"	0.80 "	0.80 "	0.80 "	0.80 "
Saline solution (0.9 per cent.)	0.11 "	0.13 "	0.15 "	0.17 "
	<hr/> 1.00 c.c.	<hr/> 1.00 c.c.	<hr/> 1.00 c.c.	<hr/> 1.00 c.c.

The tubes are placed in the air incubator for one hour at 37° C. The minimal complementary dose (the "M.C.D.") is the minimal amount of complement giving complete hæmolysis of 0.80 c.c. of "sensitised erythrocytes" after incubation in the air incubator for one hour at 37° C. In the above example the minimal amount of complement producing complete hæmolysis was found to be 0.05 c.c. (in test-tube C). Therefore the M.C.D. for the 1 in 10 saline dilution used was taken as 0.05 c.c.

The Test.

The test itself may now be described. As already stated, all the quantities of the reagents used in my reactions are the same as those employed at Guy's Hospital in the routine examination of cases with the exception of the complementary doses, which did not vary in my tests, two minimal complementary doses being always used, as these were found by experiment to be both necessary and sufficient for each of my cases. The method employed was as follows:

The Patient's Serum.—(1) For each serum two small test-tubes marked A and B were taken. (2) In each of these tubes was placed 0.1 c.c. of the patient's serum. (3) To each tube was then added two minimal doses of complement. (4) Into tube A, but not into tube B, was finally measured 0.1 c.c. of the antigen. Tube B was thus used as a "control" against tube A, for as tube B contained no antigen, one was able to note whether the patient's serum was naturally anticomplementary or not. (5) The volume of fluid in each tube was then brought to the same level by the addition, when necessary, of saline. Both tubes were then carefully shaken so that the contents of each were well mixed, the completest asepsis being observed in all the measurements.

The "Control" Sera.—Each patient's serum was always tested against and compared with two known sera, a syphilitic and a non-syphilitic serum, used as "controls." For each of these "control" sera two tubes were also prepared similar in every way to the two tubes containing the patient's serum.

For the testing of each patient's serum, then, six tubes were prepared—two for the patient's serum, two for the syphilitic serum, and two for the non-syphilitic serum. When these were ready they were placed in the air incubator for one hour at 37° C. The estimated dose of "sensitised erythrocytes" was then added to each tube, and all the tubes were replaced in the incubator at 37° C. for another sixty minutes. They were carefully examined at regular intervals, and the results finally recorded at the end of the hour.

A note may here be added with reference to the use of "control" sera in my series of cases. All my tests were performed at the same time and on the same days on which the routine Wassermann work of Guy's Hospital was undertaken. I worked side by side with the hospital serologists, and we used the same materials for our reagents. Therefore, in addition to my own "controls," I had the advantage of the hospital's series of tubes (*i.e.*, of those containing two minimal doses of complement) to check my reactions, and to confirm the accuracy of my results.

Schema of the Test.

	Unknown serum.		Syphilitic serum.		Non-syphilitic serum.	
	Tube A.	Tube B.	Tube A.	Tube B.	Tube A.	Tube B.
Reagin (undiluted)	0.10 c.c.	0.10 c.c.	0.10 c.c.	0.10 c.c.	0.10 c.c.	0.10 c.c.
Antigen (1 in 10)	0.10 c.c.	—	0.10 c.c.	—	0.10 c.c.	—
Complement (1 in 10), two doses	0.10 c.c.	0.10 c.c.	0.10 c.c.	0.10 c.c.	0.10 c.c.	0.10 c.c.
Saline solution (0.9 per cent.)	—	0.10 c.c.	—	0.10 c.c.	—	0.10 c.c.
The tubes are placed in the air incubator for one hour at 37° C.						
"Sensitised erythro- cytes"	0.80 c.c.	0.80 c.c.	0.80 c.c.	0.80 c.c.	0.80 c.c.	0.80 c.c.
	1.10 c.c.	1.10 c.c.	1.10 c.c.	1.10 c.c.	1.10 c.c.	1.10 c.c.

The tubes are replaced in the air incubator for thirty minutes at 37° C. They are then examined every ten minutes, and the results finally recorded at the end of another thirty minutes—*i.e.*, one hour after the addition of the "sensitised erythrocytes."

Interpretation of the Results.—The results in my series of cases were recorded as follows: (1) When no hæmolysis occurred the reaction was said to be "definitely positive." (2) When partial hæmolysis occurred the reaction was termed "weakly positive." (3) When complete hæmolysis occurred the reaction was called "negative."

Summary of the Technique.

In their preliminary report on the methods of carrying out this test, the Sub-Committee of the Section of Pathology of this Society defined what is generally understood to be "the

original Wassermann test" by its essential principles as follows :

"(1) The ingredients of the test (red corpuscles, 'antigen,' hæmolytic amboceptor, complement) are derived from *different* sources.

"(2) The serum to be tested is inactivated before use. An independent 'hæmolytic system' is employed, consisting of a suspension of red corpuscles, an inactivated hæmolytic serum, and a fresh normal serum containing complement. The hæmolytic values of the antiserum and complement are determined by a separate preliminary experiment.

"On general scientific grounds the Sub-Committee is unanimously of the opinion that, since the test is a quantitative reaction, the titre of the reagents ought, within practicable limits, to be accurately known."

From the above definition of the "original test" the technique herein described will be seen to differ, but it is sincerely hoped that the results so obtained will not therefore be very greatly impaired. Three points in connection with this technique must be briefly recalled, inasmuch as these points are directly concerned with the interpretation of the results obtained.

First, the serum. Each serum to be tested was always inactivated before use. Each serum was divided into two equal portions ; one was subjected to "inactivation by heat," the other to "inactivation at room temperature." Each portion was then tested in exactly the same way and the results carefully compared, when it was found that in only fourteen cases did the results differ. In all other cases the results agreed both with the heated and the unheated portions of the serum. Thus by testing the unheated sera, in every case the results obtained with the heated sera were confirmed, and *vice versa*. As some observers would maintain that more correct results are obtained by "heating" the sera, and others by testing the sera "unheated," it was hoped to avoid the fallacies arising from both sources by systematically examining each serum in this way.

Secondly, the amount of complement used in each test. In every one of these determinations two minimal doses of complement were always employed, for by experiment it was found that two minimal complementary doses were necessary and

sufficient for each of these cases, a greater dosage resulting in the presence of an excess of complement, and therefore in the production of error.

Thirdly, the "controls." Three sets of "controls" were used. (1) Each serum, whether heated or unheated, was always tested with and without "antigen," to determine whether it was naturally anticomplementary, and so to avoid if possible an excess of "positive" results. (2) Each serum, whether heated or unheated, was always tested against and compared with two known sera, a syphilitic and a non-syphilitic, under exactly the same conditions. (3) All these tests were performed at the same time and on the same days and with the same materials as the routine Wassermann work of Guy's Hospital. Therefore, in addition to the above "controls," there was always the hospital's series of tubes (*i.e.*, of those containing two minimal doses of complement) by which to check the reactions, and to confirm the accuracy of the results.

(B) THE RESULTS OBTAINED.

In this section of the paper the results obtained by the above experiments are analysed as follows :

(1) *Total percentage.*—Of the 100 cases examined, forty-two gave positive reactions. None of the fifty-eight "negative" cases, after a thorough clinical examination, revealed any of the characteristic lesions of syphilis, so that this group of forty-two "positive" cases would seem to include all the patients with syphilitic amentia whose blood serums were examined. Of the forty-two "positive" cases, twenty-two were "definitely positive," and twenty were "weakly positive." To many workers on this subject these figures would appear to yield a large percentage of "positive" results. The following facts, determined by a closer analysis, must therefore be stated :

(i) That when the sera were *inactivated by heat*, the reaction was found to be present in twenty-eight cases, being—

"Definitely positive" in . . . 22 — 10 = 12 cases

"Weakly positive" in . . . 20 — 4 = 16 cases

"Negative" in . . . 58 + 14 = 72 cases

(ii) That when the sera were *inactivated at room temperature*, the reaction was found to be present in forty-two cases, being—

"Definitely positive" in . . . 12 + 10 = 22 cases

"Weakly positive" in . . . 16 + 4 = 20 cases

"Negative" in . . . 72 - 14 = 58 cases

From which it will be seen—

(a) That in eighty-six cases the results *agreed* both with the "heated" and the "unheated" sera, being—

"Definitely positive" in . . . 12 cases

"Weakly positive" in . . . 16 cases

"Negative" in . . . 58 cases

(b) That in fourteen cases the results *differed* both with the "heated" and the "unheated" sera, so that—

In ten cases the reaction was "negative" heated, "definitely positive" unheated.

In four cases the reaction was "negative" heated, "weakly positive" unheated.

Now those workers who would maintain that heat tends to damage certain syphilitic reagins, some more intensely than others, so that a possibly positive serum may declare itself as negative, would regard the fourteen *differing* sera as yielding more correct results when tested after "inactivation at room temperature," and would therefore consider that a "definitely positive" reaction was obtained in twenty-two cases, a "weakly positive" reaction in twenty, and a "negative" reaction in fifty-eight, their total percentage of "positive" results being 42.

On the other hand, those observers who would urge that normal sera tend to become positive on keeping because of the factor of hydrolysis producing strong anticomplementary bodies, would consider the fourteen *differing* sera as yielding more correct results when tested after "inactivation by heat," and would therefore record them as "negative," or at best as being "doubtfully positive," and their total percentage would be 28 (16 "weakly positive," and 12 "definitely positive.")

Finally, there would be some observers who would hold that because only two minimal doses of complement were used in each of these determinations, only those cases in which the results were noted as "definitely positive"—*i.e.*, those cases in which absolutely no hæmolysis was observed—should be regarded as "truly positive." These would therefore discard the "weakly positive" and "doubtfully positive" cases as being "negative," and their total percentage of "positive" results would be 12, with which I personally am in agreement.

However the above figures may be interpreted, the point I wish to emphasise is this : that the results have been very carefully and accurately recorded ; the "controls" have been numerous, strict, and efficient ; and that under the conditions of the technique employed, as herein described, these results may be considered to be correct.

(2) *Sex*.—All the cases examined were males.

(3) *Age*.—The youngest of these patients was æt. 12, the five oldest were æt. 51, 52, 52, 73 and 78 respectively. There were fifty-seven patients between 12 and 21 years of age inclusive, twenty-one between 22 and 30 years inclusive, and seventeen between 30 and 50 years inclusive, so that the majority of the patients were boys. This fact is of some importance, for the compluetic reaction tends to vary with age, as shown in the following tables :

TABLE A.—*Showing the Incidence of the Reaction at Different Age-periods.*

Age-periods.	Number of cases examined.	Number of positive reactions at each age-period.	Percentage of positive reactions to cases examined at each age-period.	Percentage of positive reactions at each age-period to total number of positive reactions.
Under 12 years . . .	—	—	—	—
12 to 15 years inclusive	19	7	36·8	16·67
16 to 21 years inclusive	38 } 57	19 } 26	50·0 } 45·6	45·23 } 61·9
22 to 30 years inclusive	21	8	38·09	19·04
Over 30 years . . .	22	8	36·36	19·04

From this table it will be seen :

(i) That of all the positive reactions obtained twenty-six (or about 62 *per cent.*) occurred in patients between 12 and 21 years of age inclusive ; while only eight (19 *per cent.*) occurred in those between 22 and 30 years inclusive, and eight (19 *per cent.*) in those over 30 years.

(ii) That positive reactions occurred in 45 *per cent.* of the patients between 12 and 21 years of age inclusive, in 38 *per cent.* of those between 22 and 30 years inclusive, and in 36 *per cent.* of those over 30 years of age.

Hence it would seem that the incidence of the reaction tended to diminish as the ages of the patients increased. But

a closer study of the cases revealed an interesting modification, which also is indicated in Table A, where it is shown :

(i) That a larger percentage of positive reactions occurred between the ages of 16 and 21 inclusive than at any other period—*viz.*, 45 *per cent.*

(ii) That 50 *per cent.* of the patients between the ages of 16 and 21 inclusive gave positive reactions, while about 37 *per cent.* of those below 16 years, and about 37 *per cent.* of those above 21 years, gave positive reactions.

From which it appears that the curve of the incidence of the reaction in aments tends to rise from between the ages of 12 to 15, reaching its maximum height between the ages of 16 to 21 and then gradually falling again as the ages increase.

Again, the intensity of the reaction at different age-periods is shown in Tables B and B¹ :

TABLE B.—*Being an Analysis of the Cases giving "Definitely Positive" Reactions.*

Age-periods.	Total number of positive reactions at each age-period.	Number of cases giving "definitely positive" reactions.	Percentage of "definitely positive" reactions to the total number of positive reactions at each age-period.	Percentage of "definitely positive" reactions at each age-period to the total number of "definitely positive" reactions.
Under 12 years . . .	—	—	—	—
12 to 15 years inclusive	7	6	85·7	27·2
16 to 21 years inclusive	19	11	57·9	47·8
22 to 30 years inclusive	8	3	37·5	13·04
Over 30 years . . .	8	2	25·0	8·7

TABLE B¹.—*Being an Analysis of the "Weakly Positive" Cases.*

Age-periods.	Total number of positive reactions at each age-period.	Number of cases giving "weakly positive" reactions.	Percentage of "weakly positive" reactions to the total number of positive reactions at each age-period.	Percentage of "weakly positive" reactions at each age-period to the total number of "weakly positive" reactions.
Under 12 years . . .	—	—	—	—
12 to 15 years inclusive	7	1	14·2	5·0
16 to 21 years inclusive	19	8	42·0	42·0
22 to 30 years inclusive	8	5	62·5	26·3
Over 30 years . . .	8	6	75·0	31·5

From these tables it will be seen :

(i) That all the positive reactions, save one, occurring between the ages of 12 and 15 inclusive were "definitely positive," no hæmolysis being detected in any of the cases.

(ii) That the percentage of "definitely positive" reactions diminishes with the increasing ages of the patients.

(iii) That while there is only one "weakly positive" reaction between the ages of 12 and 15 inclusive, the percentage of such reactions increases with the increasing ages of the patients.

(iv) That if a composite graph were drawn illustrative of both these tables it would appear that the curve of the intensity of the reaction is similar to the curve of the incidence.

From this study, then, of the relationship of the incidence and intensity of the compluetic reaction in aments to the age of the patient, it becomes manifest that the reaction tends to be strongest and most frequent in patients between the ages of 16 and 21, and that it appears to be more frequent and stronger in those below 16 than in those above 21 years of age ; but it was not possible to determine exactly how either the incidence or the intensity curves should be drawn, the reason for this failure being shown in Table C. Such curves, however, ought to be realised when a very large number of reliable results have been tabulated and examined.

TABLE C.—*Showing the Number of Cases Examined, and the Number of Cases giving Positive Reactions for each Year of Age from 12 to 25 Years inclusive.*

Age.	C.	+	±	T.
Under 12 years	—	—	—	—
12 years old	2	—	—	—
13 "	2	2	—	2
14 "	9	3	1	4
15 "	6	1	—	1
16 "	7	1	3	4
17 "	8	3	1	4
18 "	6	1	1	2
19 "	7	2	—	2
20 "	4	—	2	2
21 "	6	4	1	5
22 "	2	—	—	—
23 "	6	2	—	2
24 "	1	—	—	—
25 "	2	—	1	1

C. = number of cases examined.

+ = number of cases giving definitely positive reactions.

± = number of cases giving weakly positive reactions.

T. = total number of cases giving positive reactions.

(4) *Social status*.—The fathers of forty-two of the patients were members of the skilled trades and labourers, thirteen patients were the sons of members of the professions, and thirty were born in the mercantile classes. As these cases were chosen spontaneously and more or less haphazard, it is interesting to remark that the parents of the smallest number of these aments are members of the most highly organised occupations, *viz.*, the professions; and it is also of importance to note that precisely those spheres of industry which have shown little or no manifestations of the social spirit contain the parents of the majority of these syphilitics (*vide* Table D).

TABLE D.—*Showing the Social Status of the Patients examined.*

Occupation of father.	Number of patients examined.	Number of patients giving positive reactions.
Skilled trades and labourers	42	21
Professions	13	4
Mercantile	30	14
Dead and unknown	15	3

All the 100 patients were born and bred in England (in her cities, towns, and villages) except seven. Of these seven, two were from the Channel Islands, one from the Isle of Wight, one from India, one from Barbadoes, one from Mauritius and one from Buenos Aires. The boy from Buenos Aires and the boy from the Isle of Wight gave "weakly positive" reactions; the sera of the other five were "negative."

(5) *Life-history*.—The compluetic reaction being an index of existing syphilitic infection, and not in the nature of an immunity reaction, the question arises as to whether the infection in this series of cases was an intra- or an extra-uterine one—*i.e.*, whether the syphilis was "congenital" or "acquired."

The fact that the majority of these patients came under institutional discipline and observation at a very early age, and were all of them under due protection when at home or with friends, together with the absence in them of all the physical signs and symptoms of "acquired" syphilis at any period of their lives, tends to dispose of the presence of this type of the disease in any one of these cases, the likelihood of which under the circumstances would be extremely remote. All the forty-two positive cases may therefore be said to be, in varying degrees, the victims of intra-uterine or "congenital" syphilis

But, save for the ophthalmoscopic and otological conditions, which unfortunately were not determined because of the obvious practical difficulties of such inquiries in aments, the most careful examination of the patients themselves failed to reveal the presence of any of the characteristic lesions of "congenital" syphilis in any one of them, a fact which has also been noticed by Dr. Plaut, of Munich, Major Mott, and other observers.⁽³⁾ Nor did a study of the records of the parental and family histories adduce evidence of the disease in any of the parents or their forebears—a fact which is less surprising, for the histories in such cases are notoriously misleading. The compluetic reaction, being the only reliable evidence in forty-two of these cases of their being syphilitic at all, was also the conclusive testimony to the presence of syphilis in either or both their parents.

A note may here be introduced on the appearance of the stigmata of "congenital" syphilis in aments. It will be remembered that "congenital" syphilis is an intra-uterine affection, and it will also be recollected that the children of syphilitic parents need not necessarily be aments. So that apart altogether from the fact that certain central nervous systems are peculiarly prone to attack by this virus, the manifestations of "congenital" syphilis would appear to be dependent upon the time of onset of the infection *in utero*, bearing a direct relation to the structural condition of the developing organism. That the majority of congenital syphilitics bear evidences of epiblastic or mesoblastic infection would seem to show that the foetus is not attacked till late in its development, or, perhaps, that the maternal defences are able to protect it till then. The presence of an earlier neuroblastic infection is manifested by the cases of juvenile general paralysis of the insane, a condition to which any of the preceding cases may succumb, while the earliest embryonic infections would appear to result either in the death of the organism or in arrested development. Thus, consider those cases of "infantilism," free from all obvious syphilitic stigmata, in which Major Mott has seen in both ovary and testis myriad colonies of the *Spirochæta pallida*. Similarly retarded development of the other members of the endocrinic glands may be found to be due to the same cause, and how closely the endocrinic system is associated with the central nervous system is daily becoming more manifest.

Broadly considered, amentia may, perhaps, be interpreted as a symptom-complex of arrested brain development, such retardation being due either to an inherent inability on the part of the brain cells to grow and evolve, or to the effects of some factor inimical to their perfect fulfilment, such a factor being either traumatic, or toxic, or inflammatory in its appearance. In either case the syphilitic virus may be present as cause or coincidence—*e.g.*, the inherent inability of the brain cells to develop may be due to some occult influence of the virus, or the results of its toxicity may be more recent and pronounced. Our knowledge, therefore, of the “stigmata” of congenital syphilis requires some replenishing. How many, for example, of the so-called stigmata of degeneracy are in reality the stigmata of syphilis? We do not know. Those of the latter, so frequently described and portrayed, are mainly somatic in incidence, originating in fully developed structures (*e.g.*, nodes, scars, the syphilitic wig, interstitial keratitis, etc.). What is seriously needed is a more careful study of the germinal developmental stigmata (mainly microscopical in character), and the signs and symptoms with which these are associated, and by which they are rendered more evident to the naked eye—*e.g.*, as in “infantilism,” certain cases of cretinism, perhaps also certain groups of simple aments. In other words, evidences of arrested or deranged and irregular development, if shown to be directly due to the effects of the luetic virus, ought to be regarded as being in themselves “stigmata” of congenital syphilis. Again, what of the bio-chemical stigmata? One of these, surely, is that which has been studied in recent years on such a very extensive scale as “the Wassermann reaction.”

To continue with this analysis, the next point to be determined was whether the syphilitic virus acting alone was responsible for the mental defect in these forty-two congenital cases, or whether it attained that end with the assistance of other factors. An analysis of such factors, based on a consideration of the so-called “causes” of amentia, is given in Table E (see pp. 676 and 677), from which it will be seen :

(i) That in addition to syphilis certain reputed germinal and somatic defects are together present in seventeen cases ; that these germinal defects only are present in seven cases ; and the somatic defects only in eighteen cases.

TABLE E.—Showing the Factors concerned in the *Ætiology of Forty-two Possible Cases of Syphilitic Amentia.*

No. of case.	Germinal defects.										Somatic defects.				
	Neuropathic inheritance.			Alcoholism.			Tuberculosis.		Consanguinity.		Aged parents.		Other factors.		Infantile.
	Ancestral.	Maternal.	Paternal.	Ancestral.	Maternal.	Paternal.	Ancestral.	Maternal.	Paternal.	Paternal.	Maternal.	Paternal.	Ancestral.	Maternal.	
1	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
2	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
3	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
4	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
5	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
6	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
7	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
8	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
9	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
10	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
11	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
12	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
13	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
14	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
15	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
16	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
17	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
18	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
19	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
20	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
21	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
22	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

(A) The *Ætiological Analysis of the Twenty-two Cases giving "Definitely Positive" Reactions.*

1	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
2	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
3	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
4	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
5	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
6	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
7	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
8	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
9	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
10	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
11	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
12	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
13	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
14	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
15	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
16	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
17	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
18	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
19	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
20	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
21	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
22	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

(B) *The Etiological Analysis of the Twenty Cases giving "Weakly Positive" Reactions.*

[illegible]

a = a cretin whose paternal cousin is also a cretin.

b == a premature birth.

c = a ten months baby.

d == the fifteenth child, and the second of twins.

e = a cretin whose mother and sister had exophthalmic goitre.

N.B.—The sera of all cases printed in italics were negative when "heated."

(ii) That in addition to syphilis, fourteen cases have at least one of these reputed defects, fourteen others at least two such defects, and eight have three. One case has as many as six germinal and somatic defects, another has five, and four have each four of such defects. In no case is the syphilitic virus unassociated with at least one of these ætiological factors.

Other points to be noted in Table E are :

(i) Of the forty-two positive cases the neuropathic diathesis occurs in seventeen. (Of the 100 cases examined a neuropathic inheritance was recorded in only forty-four ; so that syphilis was detected in seventeen of the forty-four cases with a neuropathic heredity. Of these seventeen cases the diathesis was recorded in seven in the parental histories only, in six in the family histories only, and in four in both family and parental histories. It appeared in seven cases on the maternal side only, in six on the paternal side only, and in four on both sides. Five of these cases gave family histories of amentia, three of insanity, and two of a "neurotic heredity." Eight of the parents were said to be "neurotic," one is insane, one had a spinal affection and was a cripple, and two died in apoplectic fits.)

(ii) There appears to be no family or parental history of alcohol.

(iii) Tuberculosis is seen to occur in the inheritance of six patients : in the family histories of four, and in the parental histories of three.

(iv) Consanguinity is present in two cases. (In one the parents were first cousins ; in the other the parental grandparents.)

(v) One of the patients, a cretin, has a paternal cousin who is likewise a cretin ; and the mother and sister of another patient, also a cretin, have suffered from exophthalmic goitre. Each of these cases also has a neuropathic inheritance, but, being instances of a metabolic inheritance as well, they are again noted here under a separate heading.

(vi) Adverse mental states of the mother were said to have been present during the foetal development of five cases, and adverse physical conditions of the mother in three. Six others are the children of aged parents.

(vii) Fifteen are firstborn children ; ten of these gave definitely positive reactions, the other five being weakly positive,

It is therefore very probable that a series of abortions may have preceded the birth of most of these patients, although such a history, unfortunately, was not recorded in any case either as positive or negative evidence.

(viii) Difficult and protracted labour with instrumental delivery is recorded in seven cases (four of which were firstborn children).

(ix) One patient was a premature birth, another was a ten months baby, and a third is the fifteenth child in his family, and the second of twins.

(x) Infantile illness is cited in seventeen cases, and infantile head injuries in five.

To what extent must now be considered does the syphilitic virus play its part in producing the mental deficiency in each of these cases? Its exact influence is, of course, difficult to estimate, but from a study of Table E it will be seen:

(A) That the virus is undoubtedly an *auxiliary* and *augmentary* factor in the ætiology of eleven cases—*viz.*, in Nos. 1, 2, 3, 6, 11, 23, 24, 25, 26, 28, 29.

(B) That it probably is the *exciting* or *determinant* factor in six cases—*viz.*, in Nos. 5, 9, 10, 27, 35, 36.

(C) That it appears to be the *essential* factor in twenty-five cases—*viz.*, in Nos. 4, 7, 8, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 30, 31, 32, 33, 34, 37, 38, 39, 40, 41, and 42.

(D) That in no case is it the *only* ætiological factor, for even on analysing Group C it will be seen:

(a) That though in two cases (*viz.*, 18 and 37) the syphilis appears to be wholly responsible for the amentia, it in reality has produced the mental defect by acting upon already degenerated germ plasm. Thus in No. 37 the boy's father was said to have died of phthisis; and No. 18, a Mongolian idiot, was the son of aged parents, being the eleventh child.

(b) In all the other twenty-three cases the syphilis appears to be associated with damaged nervous tissues. Thus No. 38, a Mongolian imbecile, and the second in his family, is said to have come of a healthy stock, being born under normal conditions, but two months previous to his birth his mother was shipwrecked and nearly drowned; while in the remaining twenty-two cases some adverse adventitious factor, occurring either at birth or during infancy, was always present. A study of these adventitious factors reveals the following interesting facts:

(a) Of the fifteen firstborn children giving a positive reaction, eleven are in Group C—*i.e.*, in the series of cases in the ætiology of which syphilis would appear to be the essential factor.

(b) Of the seven positive cases the amental condition of each of which was said to be due to difficult and protracted labour with instrumental delivery, six are seen to be in Group C.

(c) Of the seventeen positive cases in each of which the mental deficiency was attributed to a severe infantile illness, the syphilitic virus would appear to be the essential element in ten.

(d) While the five positive cases, in which infantile head injuries were cited as the cause of amentia, the essential ætiological factor in four would appear to be syphilis.

Obvious deductions, however, are disappointing, and, inasmuch as more than one of the above adverse adventitious factors of birth and infancy occur in many patients in Group C (as is shown in Table E), the obvious deductions should not be drawn, nor could they be accepted as true from the results already stated. Selecting, however, for a decisive examination only those cases in which, in addition to the syphilis, there occurred *one* other adverse adventitious factor of birth or infancy, the following tentative statements may, perhaps, be presented, *viz.*:

(a) That in three cases (19, 20, and 39), though the amentia was said to be due to the strain and stress of primogeniture, the mental deficiency was probably primarily and essentially the result of syphilis and not of the parturition.

(b) That syphilis was probably also the primary and essential factor in the two cases (21 and 22) in each of which the mental deficiency was directly attributed to difficult and protracted labour with instrumental delivery.

(c) That in two cases (40 and 41), perhaps also in three others (16, 17 and 31), where amentia was said to be produced by a severe infantile illness, syphilis and not the suggested illness, was probably the cause of the mental defect. (The illness recorded in the histories of Nos. 31 and 41 was "infantile convulsions"; while in the other three it was due to the onset of "epilepsy," a disease from which they still suffer.)

(d) That in No. 42, in whom the mental defect was said to have appeared from the date of a head injury received in

infancy, the essential cause of his amentia was probably not the injury but the syphilis, which, perhaps, was also the probable ætiological factor in No. 12, another alleged case of infantile traumatic amentia.

In conclusion, then, it should again be noted, and perhaps emphasised, that in none of these forty-two cases giving a positive compluetic reaction did the syphilitic virus acting alone appear to produce the amentia. In every instance it would seem that the virus was associated with and acted upon inherently defective, diseased and degenerated, or damaged nervous tissues. And this, perhaps, is only to be expected, for, as will be recollected, the children of syphilitic parents need not necessarily be aments, although, as is also known, a minority of congenital syphilitics, if untreated or ill-treated, are liable to become the victims of various nervous lesions under mental or physical strain and stress ; and this is especially so—in fact, it may even be said to be only so—in those patients in whom the central nervous system is in the least way defective. Given a healthy nervous system, congenital syphilis, as is proved by common medical experience, will not produce amentia. On the other hand, it is quite possible, and even reasonable, to suppose that given an exceedingly virulent neurotoxic type of syphilis *in utero* the healthiest nervous system would be likely to fall a victim to the virus. Between these two extremes, the various grades of syphilitic amentia may be found.

(6) *Classification*.—Mr. Tredgold, in his book *Mental Deficiency*, maintains that “there are two fundamentally different forms of amentia ; there are also innumerable degrees ; and it is convenient to describe certain distinctive clinical varieties.” The forms of amentia Mr. Tredgold has called primary and secondary ; the degrees are now jumbled together into four groups by Act of Parliament ; the clinical varieties are well known. In the following paragraphs the lines of classification suggested by Mr. Tredgold will be followed with slight modifications :

(a) The forms of amentia : Of the 100 cases serologically examined seventy-six were cases of primary amentia, and twenty-four cases of secondary amentia. Of the forty-two cases giving a positive compluetic reaction thirty-two were cases of primary amentia, ten cases of secondary amentia, so

that of all the cases of primary amentia examined, a little over 42 *per cent.* were positive, and of all the cases of secondary amentia examined, nearly 42 *per cent.* were positive. Moreover, as to the intensity of the reaction in each group, nine of the thirty-two cases of primary amentia gave "definitely positive" reactions, thirteen "weakly positive" reactions, and ten "doubtfully positive" reactions; while three of the cases of secondary amentia gave "definitely positive" reactions, three "weakly positive" reactions, and the remaining four "doubtfully positive" reactions.

(b) The degrees of amentia: By Act of Parliament the "innumerable degrees" of amentia are now legally grouped as four—idiots, imbeciles, feeble-minded, and moral imbeciles. All the 100 patients examined were either idiots or imbeciles. As a matter of fact, seventy of them may be considered to be imbeciles and thirty are idiots. Half of these thirty idiots gave positive reactions, in five the reaction being "definitely positive," in five "weakly positive," and in five "doubtfully positive"; while of the seventy imbeciles, twenty-seven gave a positive reaction, and of these seven were "definitely positive," eleven "weakly positive," and nine "doubtfully positive."

(c) The clinical varieties of amentia: No distinctive clinical type of syphilitic amentia has been described. Of the known clinical varieties the following occurred among the 100 cases examined:

(I) PRIMARY AMENTIA.

(1) Microcephalus	<i>Nil.</i>
(2) Mongolianism	11 cases.
(3) Simple amentia	65 cases.

(IA) PRIMARY AMENTIA WITH COMPLICATIONS.

(1) With paralysis only	2 cases.
(One Mongol and one simple primary ament.)	
(2) With convulsions only	26 cases.
(All simple primary aments.)	
(3) With paralysis and convulsions	<i>Nil.</i>

(II) SECONDARY AMENTIA.

(1) Hydrocephalus	3 cases.
(2) Hypertrophicism	1 case.
(3) Cretinism	4 cases.
(4) Simple amentia	16 cases.

(IIA) SECONDARY AMENTIA WITH COMPLICATIONS.

- (1) With paralysis only *Nil*.
 (2) With convulsions only 10 cases.
 (One hydrocephalic, one hypertrophic, and eight simple secondary aments.)
 (3) With paralysis and convulsions 5 cases.
 (One cretin, two hydrocephalic, and two simple secondary aments.)

Each of these varieties will now be considered (*vide* also Table F, p. 686).

(1) *Microcephalus*.—Unfortunately no case was examined.

(2) *Mongolianism*.—Of the eleven cases examined only three were positive. In other words, in over 72 *per cent.* of these cases the sera did not react to the test. Of the three Mongols giving a positive reaction two were doubtfully positive and the other was weakly positive. Brief records of the life-histories of these eleven Mongols are appended :

The Negative Cases.

CASE 1.—Idiot, æt. 14. (1) Ancestral history, *nil*. (2) Parental history, *nil*. Father a farm labourer. (3) Personal history: The third of five children; birth normal; infancy and childhood healthy.

CASE 2.—Idiot, æt. 25. (1) *Nil*. (2) *Nil*. Father a labourer. (3) The seventh of seven; fright of shipwreck to mother when three months pregnant; an eight months child; birth normal; infancy and childhood healthy.

CASE 3.—Idiot, æt. 20. (1) *Nil*. (2) Father somewhat dull; father and mother æt. about 35 when patient was born; father a clerk. (3) The second of three; fall of mother at seventh month; birth normal; infancy and childhood healthy.

CASE 4.—Imbecile, æt. 26. (1) *Nil*. (2) Father died of nephritis; mother healthy. (3) The fifth of six; fall of mother just before full term; birth normal; infancy and childhood healthy.

CASE 5.—Imbecile, æt. 20. (1) Paternal grandmother, aunt, and sister epileptic. (2) *Nil*. Father manager of brickfields. (3) The only child; birth normal; infancy and childhood healthy.

CASE 6.—Imbecile, æt. 18. (1) *Nil*. (2) *Nil*. Father an engineer fitter. (3) The fifth of eight; birth normal; infancy and childhood healthy.

CASE 7.—Imbecile, æt. 22. (1) *Nil*. (2) Mother always very delicate; father a policeman. (3) The eighth of nine; birth normal; infancy and childhood healthy; has right internal strabismus.

CASE 8.—Imbecile, æt. 23. (1) *Nil*. (2) *Nil*. Father a bank clerk. (3) The fourth of five; a seven and half months child; birth normal; infancy and childhood moderately healthy.

The Positive Cases.

CASE 9.—Imbecile, æt. 21. (1) *Nil*. (2) *Nil*. (3) The second of four; fright of shipwreck and drowning to mother two months before his

birth; birth normal; infancy and childhood healthy; C.R. weakly positive.

CASE 10.—Imbecile, æt. 17. (1) *Nil.* (2) *Nil.* Father a doctor. (3) The firstborn; birth normal; infancy and childhood healthy; C.R. doubtfully positive.

CASE 11.—Imbecile, æt. 27. (1) *Nil.* (2) *Nil.* Father a furniture remover (died from accident). (3) Eleventh of eleven; birth normal; infancy and childhood fairly healthy; C.R. doubtfully positive.

(3) *Hydrocephalus*.—Only three cases were examined, and one of these gave a doubtfully positive reaction. Their life-histories are briefly as follows:

CASE 1.—Imbecile, æt. 15. (1) *Nil.* (2) *Nil.* Father a labourer. (3) The sixth of ten; protracted labour and instrumental delivery; left hemiplegia, Jacksonian epilepsy; C.R. doubtfully positive.

CASE 2.—Imbecile, æt. 27. (1) *Nil.* (2) Mother died of erysipelas; father a doctor. (3) The second of seven; birth normal; infantile convulsions; C.R. negative.

CASE 3.—Imbecile, æt. 40. (1) *Nil.* (2) Father died of phthisis; mother died of "cancer"; father a schoolmaster. (3) The eighth of ten; worry to mother during pregnancy; birth normal; epilepsy when young; has left internal strabismus; C.R. negative.

(4) *Hypertrophicism*.—One case was examined, giving a definitely positive reaction. This boy is æt. 13, and the fourth child in a family of four. When he was born his father was æt. 70, and his mother æt. 40. No consanguinity existed between his parents; no phthisis, alcoholism, or insanity was said to be present in the life-histories. His father died of general peritonitis; his mother is alive and healthy. Instrumental delivery was necessary at his birth, but with the exception of recurrent convulsive attacks from which he at present suffers, he has always been in good health. Mentally he is an imbecile of a cheerful temperament and a happy disposition.

(5) *Cretinism*.—Four cretins were examined, and of these two gave positive reactions, one being definitely positive and the other doubtfully positive.

CASE 1 (giving a definitely positive reaction).—A boy, æt. 16, and the second of a family of six, all of whom are said to be normal. A paternal cousin is a cretin; the mother is said to "neurotic"; otherwise the life-histories are normal. Both his parents are healthy, his father being a fisherman. The mother attributes the patient's condition to the fright she sustained on seeing the cretin cousin for the first time while pregnant with the patient. His birth was normal. He has taken extracts of the thyroid gland since the age of 18 months. He was operated on as a child for cerebral abscess. At the present day he

is a strong, healthy, robust boy. He suffers occasionally from epistaxis, and recently he had two attacks of melæna. Mentally he is imbecile.

CASE 2 (giving a doubtfully positive reaction).—A boy, æt. 16, and the second of a family of three. No defect is recorded as present in his ancestral history. Both his parents are "neurotic," but physically in good health. His father is a warehouseman. His mother and her eldest child, his sister, have had exophthalmic goitre. The birth of the patient was normal. He has had thyroid from an early age. He is and has always been in good health. Mentally he is imbecile.

CASE 3 (giving a negative reaction).—An idiot, æt. 16, with a history of "neurotic heredity." His father, a parson, died of "heart disease"; his mother is alive and healthy. He is the only child, and instrumental delivery was necessary at his birth. He has had thyroid from an early age. He is epileptic. He also has a left otorrhœa, a right ptosis, and undescended testes.

CASE 4 (giving a negative reaction).—An imbecile, æt. 22, and the second in a family of five. Recorded in his family history is the fact that a maternal niece is feeble-minded and subject to epilepsy. His father died of "cancer of the kidneys." His mother is in good health but she says she was unable to speak distinctly till the age of 12. His eldest sister is a cretin. His birth was normal, but his "mother used to think a great deal about a cretin when carrying him." No infantile injury or other illness is recorded. He has had thyroid from the age of 2, and is to-day robust, strong, and in good health. He is very deaf.

(6) *Simple Amentia*.—In the book aforementioned, Mr. Tredgold writes: "The majority of persons suffering from primary amentia present no special distinguishing features other than the anatomical and physiological anomalies common to aments in general; they may therefore be termed simple aments, and they correspond to the 'genetous' group of Ireland." "This term," he adds in a note, "is open to the objection that all primary aments may in reality be called 'genetous.'" In this paper both the "genetous" group of Ireland and the "simple aments" of Mr. Tredgold are called by the more exact name of "simple primary amentia." It is here suggested that the term "simple amentia" should include a larger number of cases than those concerned in Mr. Tredgold's definition; that so it should be capable of division into two classes, corresponding to the two forms of amentia, and that these two classes of simple amentia should be termed "simple primary amentia" and "simple secondary amentia" respectively. Mr. Tredgold's definition, in fact, may be adapted as follows: Persons suffering from simple amentia present no special distinguishing features other than the anatomical and physiological anomalies common to aments in

general; they may be divided into two classes corresponding to the two forms of amentia and may be termed "simple primary aments" and "simple secondary aments" respectively. By simple primary amentia would be understood the "simple amentia" described by Mr. Tredgold, while simple secondary amentia would constitute all those cases of secondary amentia in which the mental defect is due to gross cerebral lesions that are the results of toxic, inflammatory, or vascular causes, but the patients themselves are not distinguished by any of the special characteristics peculiar to the clinical varieties of secondary amentia definitely known and described (*viz.*, hydrocephalus, cretinism, etc.).

TABLE F.—*Showing the Relation of the Reaction to the Clinical Varieties of Amentia Examined.*

Clinical variety.	Number of cases.	Number of "definitely positive" reactions.	Number of "weakly positive" reactions.	Number of "doubtfully positive" reactions.	Number of "negative" reactions.
(A) <i>Primary Amentia</i> —					
(1) Microcephalus .	—	—	—	—	—
(2) Mongolianism .	11	—	1	2	8 (72 per cent.)
(3) Simple amentia .	65	10 (15·3 per cent.)	11 (17 per cent.)	8 (12·3 per cent.)	36 (55·4 per cent.)
(B) <i>Secondary amentia</i> —					
(1) Hydrocephalus .	3	—	—	1	2
(2) Hypertrophicism .	1	1	—	—	—
(3) Cretinism .	4	1	—	1	2
(4) Simple amentia .	16	—	5	1	10
(C) <i>Amentia with complications</i> —					
(1) Amentia with paralysis .	7	—	—	2	5
(2) Amentia with convulsions .	41	5 (12·2 per cent.)	9 (22 per cent.)	7 (17 per cent.)	20 (48·8 per cent.)

Each of these two groups of simple amentia will now be considered.

(a) Simple primary amentia : Of the hundred cases examined sixty-five were cases of simple primary amentia, and of these twenty-nine (or 44·6 *per cent.*) gave positive reactions. Moreover, of the sixty-five cases twenty-seven were cases of amentia with complications, and thirty-eight were uncomplicated cases.

Of the latter fourteen (or 36·8 *per cent.*) gave positive reactions, while of the former fifteen (or 55·6 *per cent.*) gave positive reactions. Again, of the twenty-nine cases giving positive reactions ten gave "definitely positive" reactions, eleven "weakly positive" reactions, and eight "doubtfully positive" reactions. Of all the "definitely positive" reactions 40 *per cent.* were given by the complicated cases, and of all the "weakly positive" reactions 45 *per cent.* were given by the uncomplicated cases.

(b) Simple secondary amentia: Sixteen of these cases were examined. Ætiologically, they may be classified as follows: Simple secondary amentia due to—(i) "infantile convulsions," seven cases; (ii) recurrent convulsions in early childhood, three cases; (iii) other illnesses in infancy, four cases; and (iv) head injuries in infancy, two cases. The first two of these groups will be considered in the section dealing with "amentia with convulsions." It may here be recollected that the ætiological group of simple secondary amentia due to "recurrent convulsions in early childhood" was known by the older writers as "eclampsic amentia." To-day Mr. Tredgold calls the same group of cases "epileptic amentia," distinguishing them from "amentia with epilepsy," where the convulsions are a complication and not the cause of the amentia. Both these terms, however, tend to confusion and are therefore not employed in this paper. Of the remaining two ætiological groups of simple secondary amentia, the sera of the four cases due to "other illnesses in infancy" gave negative reactions, the illnesses recorded being "sunstroke," "meningitis," "illness at teething," and "mastoiditis." Both the cases due to head injuries in infancy gave positive reactions, one being doubtfully positive and the other weakly positive. In the ætiological Table E these two cases are shown as Nos. 12 and 42 respectively, and they are very probably cases in which the syphilitic virus and not the alleged injury is the primary and essential cause of the mental defect.

(7) *Amentia with Complications.*—Of the 100 cases examined forty-three were cases of amentia with complications. Of these forty-three cases twenty-one (or 48·8 *per cent.*) gave positive reactions, while of the fifty-seven uncomplicated cases twenty-one (or 36·8 *per cent.*) gave positive reactions; so that of all the positive reactions obtained half were given by the uncomplicated

cases and half by the complicated cases. Again, of the seventy-six cases of primary amentia examined twenty-eight (or 36·8 *per cent.*) were cases with complications, while fifteen of the twenty-four cases of secondary amentia (*i.e.*, 62·5 *per cent.*) were complicated cases. Of all the cases of primary amentia with complications, fifteen (or 53·5 *per cent.*) gave positive reactions, while of the uncomplicated cases of primary amentia seventeen (or 35·4 *per cent.*) gave positive reactions. Of all the cases of secondary amentia with complications six (or 40 *per cent.*) gave positive reactions, while of the uncomplicated cases of secondary amentia four (or 44·5 *per cent.*) gave positive reactions.

The cases of amentia with complications will now be considered under two heads: (a) Cases with paralysis; (b) cases with convulsions.

(a) Amentia with paralysis: The physical condition of seven of the 100 patients was complicated with paralysis, the types of paralysis being as follows: Hemiplegia, three cases; strabismus, three cases; and ptosis, one case. Of these seven cases, two gave doubtfully positive reactions, both being hemiplegias and cases of secondary amentia. One of these two, a hydrocephalic, is also subject to "Jacksonian epilepsy."

(b) Amentia with convulsions: At the present day seventeen of the 100 cases examined suffer from recurrent convulsive attacks commonly designated by the convenient group-name of "epilepsy." In addition to these, eleven others have suffered from similar attacks when younger, but are not so affected now; and twelve others are said to have had "infantile convulsions." Moreover, one other case is subject to "Jacksonian epilepsy." In all, then, forty-one of the 100 cases examined have had convulsive attacks at some period of their lives. These cases are analysed in Table G.

From this table it will be seen:

(i) That, excluding the "Jacksonian epileptic," of the forty remaining cases of amentia with convulsions twenty (*i.e.*, 50 *per cent.*) gave positive reactions, five being "definitely positive," nine "weakly positive," and six "doubtfully positive."

(ii) That, excluding also the cases of "infantile convulsions," there are twenty-eight patients who are or have been subject to recurrent convulsive attacks. Of these sixteen (a little over 57 *per cent.*) gave positive reactions, five being "definitely positive," five "weakly positive," and six "doubtfully positive."

(iii) That of the seventeen cases suffering at the present day from recurring convulsive attacks, commonly designated by the group-name of "epilepsy," ten, or nearly 59 *per cent.*, gave positive reactions ; and of these positive reactions 30 *per cent.* were "definitely positive."

TABLE G.—*Being an Analysis of the Forty one Cases of Amentia with Convulsions.*

Clinical variety.	No. of cases.	Number of "definitely positive" reactions.	Number of "weakly positive" reactions.	Number of "doubtfully positive" reactions.	Number of "negative" reactions.
<i>Recurrent convulsions at present day—</i>					
(1) Simple primary aments .	15	2 (13 per cent.)	4 (27 per cent.)	3 (20 per cent.)	6 (40 per cent.)
(2) Hypertrophic .	1	1	—	—	—
(3) Cretin (with paralysis) .	1	—	—	—	1
<i>Recurrent convulsions in childhood—</i>					
(1) Simple primary aments .	7	2	1	2	2
(2) Hydrocephalic (with paralysis) .	1	—	—	—	1
(3) Simple secondary aments .	2	—	—	1	1
(4) Simple secondary aments (with paralysis) .	1	—	—	—	1
<i>"Infantile convulsions"</i>					
(1) Simple primary aments .	4	—	1	—	3
(2) Hydrocephalic .	1	—	—	—	1
(3) Simple secondary aments .	6	—	3	—	3
(4) Simple secondary aments (with paralysis) .	1	—	—	—	1
<i>"Jacksonian epilepsy"—</i>					
(1) Hydrocephalic (with paralysis) .	1	—	—	1	—

Hence it would seem from the above study that of all the patients who have had convulsive attacks at some period of their lives over 50 *per cent.* gave positive reactions ; while of those who might have been designated "epileptic" at some period of their lives a little over 57 *per cent.* gave positive reactions ; and of those diagnosed as "epileptic" to-day nearly 59 *per cent.* gave positive reactions.

Again, comparing the figures given in Table G with the total number of cases giving positive reactions (*viz.*, forty-two cases), it will be seen that of all the patients giving positive reactions twenty-one (or 50 *per cent.*) have had convulsive

attacks at some period of their lives ; sixteen (or 38 *per cent.*) might have been designated "epileptic" at some period of their lives ; and ten (or nearly 24 *per cent.*) are diagnosed as "epileptic" to-day.

Considering now the non-convulsive cases, it will be remembered that fifty-nine of the 100 cases examined have never had a convulsive attack of any kind at any period of their lives. Of these fifty-nine cases twenty-one gave positive reactions. In other words, half the total number of positive reactions in this series occurred in non-convulsive cases, and the other half in those who have had convulsive attacks at some period of their lives. To be more exact, 50 *per cent.* of the positive reactions occurred in non-"epileptic" cases, and 38 *per cent.* in those cases which might have been designated "epileptic" at some period of their lives. On the other hand, as already noted, a little over 57 *per cent.* of these "epileptic" cases gave positive reactions, while of the non-"epileptic" cases only 35·5 *per cent.* gave positive reactions.

Other facts to be noted are as follows :

(a) Seventy-six cases of primary amentia were examined, and of these twenty-six were cases with convulsions. Of the convulsive cases, fifteen (or 57·7 *per cent.*) gave positive reactions, while of the fifty non-convulsive cases seventeen (or 34 *per cent.*) gave positive reactions.

(b) Fifteen of the twenty-four cases of secondary amentia were cases with convulsions. Of these convulsive cases six (or 40 *per cent.*) gave positive reactions, while of the non-convulsive cases four (or 44·5 *per cent.*) gave positive reactions. Moreover, of the fifteen convulsive cases ten were cases with convulsions only, and of these five (or 50 *per cent.*) gave positive reactions.

(c) Eighty-one cases of simple amentia were examined, and of these thirty-six were cases with convulsions. Of the convulsive cases nineteen (or 52·7 *per cent.*) gave positive reactions, while of the forty-five non-convulsive cases sixteen (or 35·5 *per cent.*) gave positive reactions. Moreover, thirty-four of these cases were cases with convulsions only, and nineteen (or 55·8 *per cent.*) gave positive reactions.

Again, of the thirty-six cases of simple amentia with convulsions, twenty-six were cases of primary amentia and ten of secondary amentia. Of the twenty-six cases of simple primary

amentia with convulsions, fifteen (or 57·6 *per cent.*) gave positive reactions, while of the non-convulsive cases of this type fourteen (or 35·8 *per cent.*) gave positive reactions. Of the ten cases of simple secondary amentia with convulsions, four (or 40 *per cent.*) gave positive reactions ; of the eight cases of this type with convulsions only, four (or 50 *per cent.*) gave positive reactions ; while of the non-convulsive cases two (or 33·3 *per cent.*) gave positive reactions.

The last point to be investigated was the relation of the intensity of the "epilepsy" and the frequency of the convulsive attacks to the incidence and intensity of the reaction. Unfortunately, no such relations were obtained. Three of the "negative" cases, for instance, were the severest cases of "epilepsy" examined ; while of the "positive" cases the most severe and the mildest gave "definitely positive" reactions, the serum of the second worst was only "weakly positive" and so on. One slight feature of this series of cases, however, should be noted. It was found that the convulsive attacks in the "positive" cases tend to be far more frequent during the night and the early hours of the morning than they are during the day, while in the "negative" cases they are most frequent during the day. The intensity of the convulsive attacks in each instance appears to be characterised also in the same way. This feature of the "positive" cases, therefore, tends to bring them into line with other syphilitic conditions—*e.g.*, the syphilitic headache, which is said to be most intense towards the early hours of the morning.

RECAPITULATION.

The main points of this paper may be recapitulated as follows :

(1) *The Incidence of the Compluetic Reaction in the Cases of Amentia Examined.*—The blood sera of 100 aments were examined, and a "positive" reaction was found to be present in forty-two ; but only twelve of these are to be regarded as "truly positive."

(2) *The Intensity of the Reaction in the Cases of Amentia Examined.*

(i) Sera were tested heated and unheated. Sera in which no hæmolysis occurred were recorded as "definitely positive"

those in which partial hæmolysis occurred as "weakly positive." Sera in which the results differed when heated and unheated were recorded as "doubtfully positive." Of the forty-two sera giving a positive reaction in twelve the reaction was found to be "definitely positive," in sixteen "weakly positive," and in fourteen "doubtfully positive"; but only the twelve "definitely positive" reactions are to be regarded as "truly positive."

(ii) Quantitatively, even the "definitely positive" reactions are to be considered as feeble reactions, for the syphilitic reagin present in each of these cases was invariably found to be in small quantities, being always enough to utilise two minimal doses of complement.

(3) *The Relation of the Presence of the Reaction to the Sex of the Patients Examined.*—This was not determined, as all the aments examined were males.

(4) *The Relation of the Presence of the Reaction to the Age of the Patients Examined.*—The reaction was found to vary with age. As a rule, it tended to diminish in incidence and intensity as the ages of the patients increased. It appeared, however, to be strongest and most frequent in patients between 16 and 21 years of age; and it tended to be more frequent and stronger in those below 16 than in those above 21 years of age. In considering the total percentage of the positive results obtained, it should be remembered that the majority of the patients examined were boys, 38 *per cent.* being between 16 and 21, and 57 *per cent.* under 21 years of age.

(5) *The Relation of the Reaction to the Forms of Amentia Examined.*—The reaction was obtained in a little over 42 *per cent.* of the cases of primary amentia, and in nearly 42 *per cent.* of the cases of secondary amentia. It tended to be a little stronger in the latter group of cases.

(6) *The Relation of the Reaction to the Degrees of Amentia Examined.*—Only idiots and imbeciles were examined. The reaction appeared to be more frequent and stronger in the idiots than in the imbeciles; thus, 50 *per cent.* of the idiots examined gave a positive reaction, and in 16.6 *per cent.* the reaction was found to be "definitely positive," whereas it was present in 38.5 *per cent.* of the imbeciles, being "definitely positive" in 10 *per cent.*

(7) *The Relation of the Reaction to the Clinical Varieties of Amentia Examined.*

(i) In over 72 *per cent.* of Mongols the serum did not react to the test. Of the eleven cases examined, a positive reaction was obtained in three, being "weakly positive" in one and "doubtfully positive" in the other two.

(ii) One of three cases of hydrocephalus gave a "doubtfully positive" reaction.

(iii) Only one case of hypertrophicism was examined, and this was found to be "definitely positive."

(iv) A positive reaction was obtained in two of four cretins, being "definitely positive" in one, and "doubtfully positive" in the other.

(v) Eighty-one cases of simple amentia were examined, and the reaction was found to be "definitely positive" in ten, "weakly positive" in sixteen, and "doubtfully positive" in nine. Excluding the "doubtfully positive" cases the reaction was found to be present in 32 *per cent.* of simple aments. It appeared to be more frequent in the cases of simple primary amentia than in the cases of simple secondary amentia.

(vi) Of the seven cases of amentia with paralysis, two, both hemiplegias, gave "doubtfully positive" reactions.

(vii) Excluding the "doubtfully positive" cases, the reaction was present in 41.2 *per cent.* of patients suffering at the present day from recurring convulsive attacks, commonly designated by the group-name of "epilepsy"; in 35.7 *per cent.* of those diagnosed as "epileptic" at some period of their lives; and in 23.7 *per cent.* of non-"epileptic" cases. It should also be noted that of the simple primary aments with recurrent convulsions to-day, a "definitely positive" reaction was obtained in only 13 *per cent.*

(8) *The Rôle of Syphilis in the Ætiology of the Cases of Amentia Examined.*—Three points are to be noted:

(i) That as the compluetic reaction is an index of existing syphilis, all the positive cases are to be regarded as weak syphilitic infections.

(ii) That these weak infections were intra-uterine or "congenital" in origin.

(iii) That the syphilitic virus did not appear to be wholly responsible for the amentia in each of these cases, but seemed rather to have been associated with and to have acted upon inherently defective, diseased and degenerated, or damaged tissues.

In conclusion, I should like to state how very grateful I am to Sir George Savage for his kindly interest in and generous appreciation of this my work, whereby it was submitted to the authoritative criticism of Major Mott, who, though he regretted that the technique employed was not in strict conformity with that of the "original" test, yet agreed the results obtained were of sufficient value to be placed before this meeting.

APPENDIX.

Showing some of the results published.

Names of observers.	Number of cases examined.	Number of "positive" results obtained.	Percentage of "positive" results obtained.
<i>In France.</i>			
Raviart, Breton, &c. (1)	246	76	30.8
<i>In Denmark.</i>			
(a) Lippmann (2)	78	7	8.9
(b) <i>Idem</i>	(?)	(?)	13.2
<i>In Germany.</i>			
Kellner, Clemenz, &c. (3)	216	8	3.7
Dean (4)	330	51	15.4
Thomsen, Boas, &c. (5)	2,061	31	1.5
Kröber (6)	262	56	21.3
<i>In America.</i>			
Atwood (7)	204	30	14.6
W. C. Stoner and E. L. Keiser (8)	1,050	83	7.9
Dawson (9)	—	—	4.0
(a) Stevens (10)	21	2	9.5
(b) <i>Idem</i>	18	6	33.3
<i>In England.</i>			
Muirhead (11)	5	—	—
Schölberg and Goodall (12)	46	15	32.6
Chislett (13)	22	11	50.0
Gordon (14)	400	66	16.5
Fraser and Watson (15)	205	123	60.0
(a) Rees Thomas (16)	163	8	4.9
(b) <i>Idem</i>	—	—	10.0
Robertson and Findlay (17)	15	(?) 9	59.0
F. E. Batten (18)	2	—	—
(a) Mott (19)	257	21	8.1
(b) <i>Idem</i>	200	24	12.0
H. F. Stephens	100	12	12.0

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DISCUSSION.

Dr. PERCY SMITH: Before the Wassermann test was discovered the percentage of definite syphilitic cases in mental defectives (idiots and imbeciles) appeared to be only 2 or 3 *per cent.*, and the enormous difference in the percentages now shown by various observers raises doubt as to the real proportion of syphilitic cases. It is interesting that in the case of "mongol" idiots the percentage of syphilitics appears to be low, these cases being commonly the youngest child of a large family when the mother is approaching the limit of reproductive function.

Dr. SHUTTLEWORTH: In reference to the statistics of syphilis and mental defect quoted by Dr. Percy Smith, these were published by Dr. Fletcher Beach and myself in Hack Tuke's *Dictionary of Psychological Medicine* so long ago as 1892. They were based upon clinical signs and family histories of 2,380 cases investigated at the Darenth and Royal Albert Asylums, and gave a very low estimate (under 2 *per cent.*) of the influence of inherited syphilis as a factor of idiocy, etc. The late Dr. Langdon-Down also stated that in his large experience of idiots at Earlswood, as well as from pathological investigations as Physician to the London Hospital, he was of opinion that not more than 2 *per cent.* were the subjects of congenital syphilis. The *Spirochaeta pallida* was, however, not discovered till 1905, and the earlier statistics rested solely on personal stigmata and family history. Subsequently the Wassermann reaction came into vogue as a test, and very varying reports have been issued by successive observers. In the new edition (just published) of *Mentally Deficient Children*, there appears a table of percentages obtained by fourteen different observers, varying from 15 to 60, in which positive reactions to the Wassermann test have been recorded in the blood of congenital cases of mental defect. Dr. Stephens apparently found such reaction in 42 *per cent.* of his 100 cases at Earlswood. Unfortunately I was prevented from arriving in time to hear the early part of the paper, in which presumably Dr. Stephens has described the technique he has adopted. But the discrepancies noted lead to the suspicion that the methods used by the various observers cannot

have been uniform, and consequently the results must be to some extent discounted. The inquiry is a most important one, and I trust that Dr. Stephens will utilise the material at Earlswood to the full. I am especially interested in the comparison made by Dr. Stephens as to reaction in certain characteristic types. The mongolian type, for instance, has shown comparatively little "compluetic" reaction, and this accords with clinical experience that such cases are "exhaustion products" rather than of toxic origin, though in exceptional cases a syphilitic taint may give rise to maternal exhaustion. I have always suspected that certain hydrocephalic cases are of syphilitic origin, and that is a point on which the compluetic reaction will shed scientific elucidation.

SIR GEORGE H. SAVAGE: I regret the smallness of the meeting, for I think the paper by Dr. Stephens one of the most important which have been read at the Section. It will be fully appreciated when it is in print. A very great change has taken place in the opinion of doctors in relationship to syphilis as a possible or partial cause of mental deficiency. Recently a paper has been read at the Medico-Psychological Society on the influence of toxins in producing mental deficiency. We all allow that syphilis is the most dangerous toxin to the nervous system, and we are prepared to recognise it as a cause of amentia. The former authorities on idiocy, such as Langdon-Down and Ireland, did not recognise it as a factor. The great difference between the percentage of positive Wassermann reactions met with at Earlswood from similar observations in Germany makes one feel, with our President, that the technique should be revised in some way so as to bring it into line with that of the Germans. It is again interesting to note the number of patients with a positive reaction yet with no external stigmata pointing to inherited syphilis. Recently I saw a case of a father who had had syphilis. He had had two children, one of whom died of epilepsy and the other is a very well-marked mental defective, yet without external signs of inherited disease. The paper is suggestive and gives evidence of good work in a field much neglected in England.

THE PRESIDENT: I congratulate Dr. Stephens upon his paper, which is a valuable contribution to knowledge at the present time. I wish that it had appeared before the Report of the Royal Commission had been published. The high percentage obtained by Dr. Stephens may be due to several causes. It is necessary first of all to separate cause from coincidence; a positive Wassermann reaction of the blood, the cerebro-spinal fluid not having been examined, does not necessarily prove that the idiocy was due to syphilis. In support of this statement, I may mention that Sir John Collie has shown that 9.2 *per cent.* of males apparently healthy applying for employment in the various occupations connected with the administration of the L.C.C.—for example, tramway, fire brigade, etc.—gave a positive Wassermann reaction. The sera of these men were tested in the pathological laboratory of the L.C.C. under my direction, and the original technique (Wassermann's) was employed. I have tested the bloods from 200 cases of mental defectives, and have found a positive reaction in 12 *per cent.* I wish that Dr. Stephens had employed the original Wassermann technique, for it was laid down by the Royal Commission, strengthened by a report of a Committee of the Pathological Section of this Society, that short cuts were undesirable, and that it would be better if the original technique were employed in all investigations. I would accept the 12 *per cent.* of marked positive reactions of Dr. Stephens, for that about corresponded with the results obtained by Dean and others. I think the remainder of the cases which gave a partial or a weak reaction should be reinvestigated by the (approved) method of technique I have alluded to. I presume he considers that these positive cases were due to congenital syphilis, and not acquired. I am therefore surprised to learn that the larger number of positive cases occurred in adolescent patients. Plaut's observations on the children of general paralytics rather showed that the reaction tended to disappear with age. Dr. Stephens remarked that few cases showed any signs of syphilis on the body. Dr. Plaut only found one case out of twenty infants with a well-marked positive reaction showing any eruption on the body. Infantilism, imperfect development, or arrest of development of the reproductive organs, is very common in idiots and low-grade imbeciles; this may be due to syphilitic infection of the organ. I have found the spirochaetes in the testes of a foetus. The family history showed a number of pregnancies resulting in defective children,

and children born dead or dying in early infancy. The mother, however, was an imbecile; the dead children and abortions came after the living, so that probably the mental deficiency had nothing to do with congenital syphilis. Indeed, the history tended to show that the mother was syphilised after having given birth to living children, including the mental defective. The serological test in such a case would have been most valuable. I should like to ask Dr. Stephens whether he has made a comparative analysis of the family histories of the positive and negative cases, especially in regard to the result of pregnancies in the mothers. When I visited Darenth I found idiots of whom it was said there were no signs of syphilis, yet examination of the fundi showed choroido-retinitis. The reason why more mental defectives do not occur as a result of congenital syphilis is due to the fact that if the spirochaetes enter the central nervous system the child dies.

Dr. STEPHENS (in reply): The paper I have written, as you see, is a bulky one. I have therefore only chosen those sections of it that I thought would be easier to read, and questions concerning others I hoped to answer as they were raised in this discussion. I have also purposely omitted all reference to a few important aspects of the subject, hoping thereby to make certain of being asked about them. Dr. Percy Smith has raised an important issue, and in answer I should like to say that the patients have been very carefully examined from the clinical standpoint, and that in *no case* could I find any definite syphilitic stigmata, lesions usually considered to be characteristic of the inherited disease. I must, however, state—and this will answer the President's question also—that the ophthalmoscopic and otological examinations of these patients were unfortunately not undertaken because of the obvious practical difficulties of such inquiries in aments precluding one from making any general statements on these points. The family histories have also been carefully investigated and were "negative," from the information I had at my disposal; but such information is invariably deficient, and in the majority of cases unreliable. These observations, based on the clinical aspects and family histories, agree with those obtained by other workers, who may be divided into two groups—those who recorded their observations before the compluetic reaction was used in the investigation of amentia, and those who have themselves employed the test in such investigations. Dr. Shuttleworth (1) has given us his own results, published in collaboration with Dr. Fletcher Beach in 1892, when clear evidence of inherited syphilis was found in only 1·17 *per cent.* of their cases; while Dr. Langdon-Down (2) detected the stigmata in 2 *per cent.* of cases; and Dr. Ireland (3) recorded with some surprise that the disease was not concerned in the ætiology of amentia. Later, however, Dr. Sherlock (4) obtained satisfactory evidence of syphilis in one or other parent in 14·4 *per cent.* of ninety cases, and Professor Th. Ziehen (5), of Berlin, detected the disease in as many as 17 *per cent.* of aments. Therefore, before the advent of the compluetic reaction the percentage of syphilitic cases, based on clinical evidence alone, was considered to be small. Since the employment of the test, however, a larger number of syphilitic cases have been detected, but the same small percentage of clinical results has been obtained as shown in the writings of Dr. Plaut, Major Mott, and others. Therefore one of two conclusions is true—either that the reaction is not associated with syphilis, which in the light of our present knowledge would be considered absurd, or that the more obvious clinical stigmata of syphilis are not found in aments, which, with the testimony of the present and past experience of competent observers to support it, would appear to be correct. With Dr. Percy Smith's remarks on the causation of mongolianism most observers would to-day agree, but it was not so very long ago when this condition was considered to be parasymphilitic, and that is why I have emphasised the point that in the sera of over 72 *per cent.* of mongols I have found the reaction negative. In answer to the President I have to say that, with the exception of seven, the patients came from all parts of England—from villages, towns, and cities; and they were drawn from all ranks of society. These points I have mentioned in my paper. Both Major Mott and Dr. Shuttleworth have referred to the technique employed in these tests. One of the principles of the "original method," as defined by the Society's Sub-Committee, is that the ingredients of the test should be derived "from *different sources*." If this means "from different individuals," then the technique I employed agrees with that of the "original" test. But if it is intended to mean "from individuals of different species" (*e.g.*, the rabbit, the sheep, the guinea-

pig), then the technique I employed does not agree with that of the "original" test, for I used in my "hæmolytic system" human red blood corpuscles (always obtained, it must be remembered, independently of the bloods to be examined). Otherwise my technique conformed with the principles of the "original" test, and as shown in my paper everything was done to render the determinations as accurate as possible. Major Mott questions the accuracy of the "unheated" reactions. I agree with him, but I do not think they in any way invalidate the final interpretation of the results obtained. I should like to emphasise the fact that 12 and not 42 should be taken as the total percentage of the positive results. I have recorded the other reactions merely to indicate that they have been obtained, and in my paper I have given reasons why they should be rejected as "negative."

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Reaction Time in Nervous and Mental Diseases. By
E. W. SCRIPTURE, M.D., Ph.D.

I. Introduction.

OUR knowledge of whether a person is normal, or suffers from neuritis, or is a case of dementia præcox, is derived entirely from observations of how he reacts to his environment—that is, to various stimuli. The thought at the basis of these researches is that an attempt may be made to produce an environment where the results will be accurately recorded in a simple, direct way.

The study of the nervous and mental condition of human beings consists of a study of their reactions—that is, of their responses to stimuli. By using stimuli of sound or light to which the person must respond by a voluntary movement, some degree of simple mental activity is involved. By requiring discrimination between two stimuli, and choice between two actions, more complicated mental action is included. These researches have not gone beyond this rather simple degree of mental action involving sensation, perception, discrimination, choice, and volition. They should be extended to higher forms of reaction to include association of ideas, judgments, emotions, etc., in fact, to all and more than what is included in a regular examination.

The method here employed differs from other methods of examination and study by resulting in a measurement. The simple reaction to a light or a sound, involving sensation and volition, results in a measurement of time—the “simple reaction time.” The more complex response involving discrimination and choice results also in a measurement of time—the “complex reaction time.” The various higher mental activities can be tested by methods of experiment that result in measurements of time or accuracy or force.

Such a series of self-recording tests may perhaps be developed and extended to include all the essentials required for a diagnosis, while the increased precision in certain tests may make a large part of the ordinary examination unnecessary.

The researches of past years in physiology and psychology have shown that the time of a reaction changes with the condition of the individual, with the complications of the situation, etc. Hitherto these researches have been confined almost entirely to normal persons. It is the purpose of this investigation to determine how persons with various nervous and mental diseases respond to certain simple definite problems.

The simplest problem is that of being required to watch for a signal, and to respond by the movement of a finger when the signal is perceived. Such a response is termed a “simple reaction.” Although a reaction may be studied in many ways, the time it requires—the “reaction time”—is that factor for which the technique has been most developed.

The ordinary measurements of reaction time involve a fine clock-work registering in hundredths or thousands of a second. Each result has to be recorded by the experimenter. The taking of 100 reaction times can hardly be accomplished in less than one hour. Such a method is entirely too cumbersome for clinical use. I have therefore devised a self-recording method that shows directly to the eye without measurement just how quick the reaction time is, and just how it varies. The whole series of experiments in all their details is fixed on paper in a few minutes in a way that would require hours of work by the older methods. The diagnosis, in so far as it depends on these records, is settled on the spot. The actual reaction times can be obtained with the greatest accuracy by measuring the automatic record at any convenient time,

II. *Apparatus.*

A recording drum (kymograph) turned by clock-work, carries a surface of smoked paper (Fig. 1). On the axle of the drum there is a spring that makes contact once every revolution with an insulated metal point held by a support. Every time the spring passes the contact point an electric circuit is closed for an instant. This circuit includes a magnetic signal or miniature incandescent lamp. The magnetic signal makes a movement once every revolution. This movement can be used as a visual signal by making the action noiseless with a piece of cotton, or the sound itself can be used as an auditory signal. The little lamp is used as a visual signal.

The record on the smoked paper of the drum is made by a magnetic marker on a stand. The marker is placed so that its recording point rests against the drum with no current passing through, and is pulled away from the drum as soon as the circuit is closed. A separate circuit with a battery current interrupted by a telegraph key is connected with this marker. The closing of the circuit by the key holds the point of the marker away from the drum.

Before an experiment the drum is turned until the spring touches the insulated point and the signal is given. Holding the drum in this position, with the marker circuit broken so that the point touches the drum, the marker is run up or down on its support. The vertical white line thus drawn indicates the point of the drum directly under the marker at the moment the signal circuit is closed; it is called the "zero line."

To make a record the patient holds his finger on the key to keep the circuit closed, and the point of the marker away from the drum. The drum is set in motion. When the signal is given he releases the key, and so lets the marker draw a white horizontal line on the smoked paper. The rate of revolution of the drum can be regulated to suit the occasion.

The scheme of a record is shown in Fig. 2. The space from the zero line to the beginning of the horizontal line represents the time that elapsed between the moment of the stimulus and the moment of the reaction; it is called the "reaction time." The length of the horizontal line represents the "holding time," or the time the patient held his finger off the key.

After the reaction occurs, the recording point is moved down

JOURNAL OF MENTAL SCIENCE, OCTOBER, 1916.

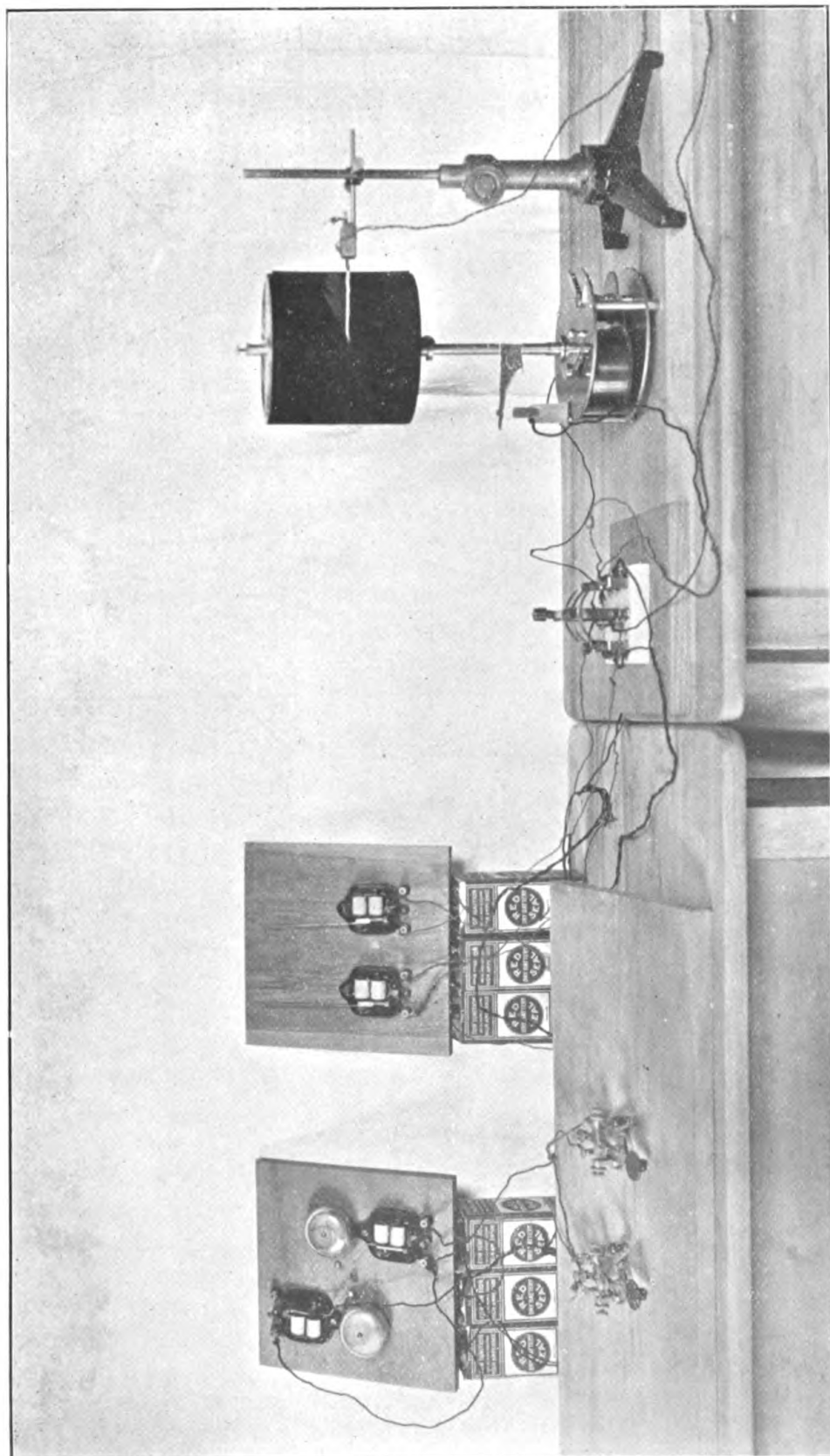


FIG. 1.—Recording apparatus.

To illustrate paper by Dr. E. W. SCRIPTURE.

Adlard & West Newman.

about half a millimeter by a notched wheel. The drum continues to turn, and after a short time (four and a half seconds) the signal is made again, and the patient again reacts. In this way records are made at small distances apart.

Before or after each record a time line is drawn on the drum by applying to it a fine point at the end of a tuning fork vibrating one hundred times a second. Each wave of the time line represents one-hundredth of a second. After the record has been varnished a portion of the time line is cut out, and used as a scale to measure the reaction time and the holding time.

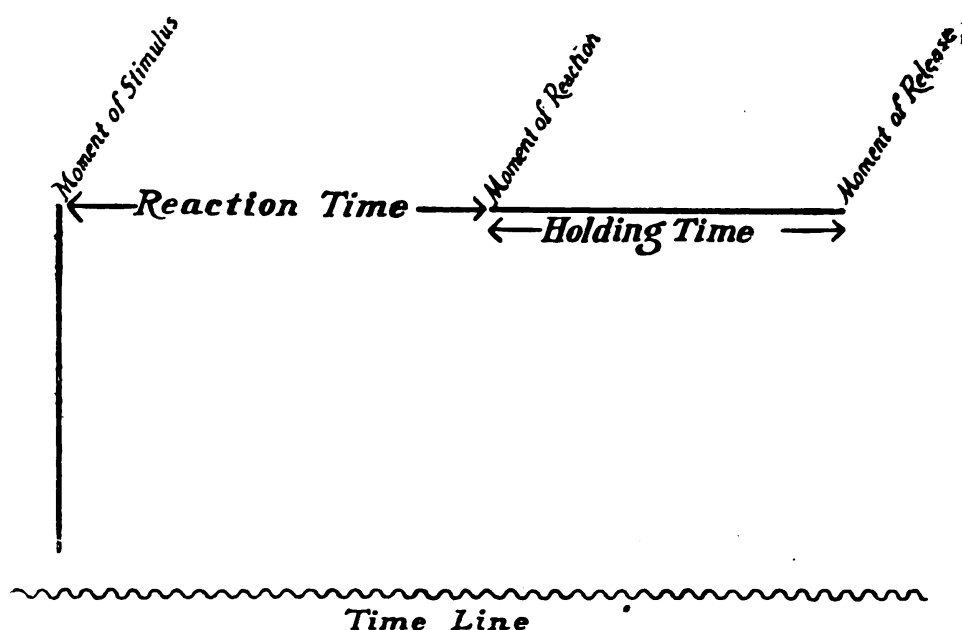


FIG. 2.—Scheme of reaction record.

The important advantage of having the successive records at equal distances apart is gained by placing the marker on a support that can be lowered by rack-work similar to that of a microscope. The following arrangement is added. On the inner side of the small wheel that lowers the support by connection with the rack-work shallow depressions are drilled in a series. A dull-pointed steel pin is fixed in a barrel against a spring so that its point rests in a depression of the wheel. As the wheel is turned the point is forced out of the notch, but falls into the next one; this is sufficient to cause the hand to stop in turning the wheel.

Recording reaction times in this way gives at once a complete

picture of how the reaction times grow longer or shorter, how they become more or less irregular, etc. For much clinical work it is not necessary to make measurements; the record sheet presents a sufficiently accurate picture of the condition.

The time required for the marker to touch the drum after the current is broken—its “latent time of the break”—is registered by passing the current from the battery through the marker, and then through the contact on the drum. This arrangement also registers the time required for the point of the marker to leave the drum after the current is made, that is, the “latent time of the maker.” For the small marker used here the latent times of the break and of the make averaged less than 0.005 sec. These times are very regular, the average error being 0.002 sec.

The latent time of the magnetic signal was measured in the same way as that of the marker. It was very small and regular, averaging 0.01 sec.

The time required for the lamp to light up after the contact is made—its latent time—was measured in the following manner. The lamp was placed back of the drum, and just below its lower edge. Exactly opposite it in front of the drum there was placed a long tube with a vertical slit at one end. The observer looked through the other end and adjusted the tube so that he could see the lamp through the slit. On the bottom of the drum there was placed a strip of cardboard with a horizontal slit in it; this slit was covered by a paper slide. The cardboard was so placed that, the moment the contact was made, the left end of its slit was in a line with the lamp and the slit in the tube. The paper was pulled aside so as to leave a narrow slit in the cardboard. If the lamp had lit up exactly when the contact was made, it could have been seen through the narrowest possible slit in the cardboard, but as it took time for the lamp to light up, the drum had turned a certain distance in that time, and so a larger slit was necessary. The slit was enlarged until the observer could just see the light. Then the time of exposure through the slit was measured. In this case the latent time of the lamp was found to be approximately 0.01 sec.

The zero line nominally indicates the moment of the occurrence of the visual or auditory signal. Actually the signal occurs afterwards by the amount of the latent time. All the records are therefore too long by the amount of the latent time

of the signal, namely, in these researches by approximately 0.01 sec. To get the true reaction time this amount must be subtracted. The marker makes its registration too late by the amount of its latent time. Therefore this amount must be subtracted from the registered reaction time to get the true reaction. These two latent times are subtracted in the computations.

The holding time is not affected by the latent time of the

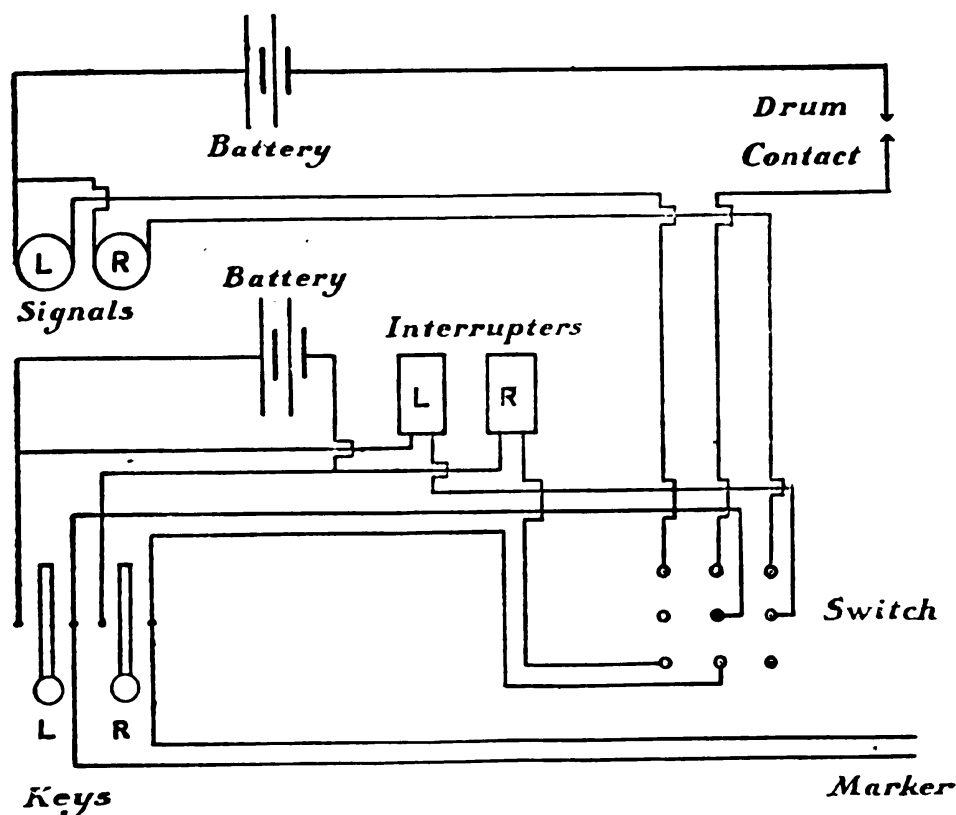


FIG. 3.—Diagram of electrical connections.

marker, as the marker touches the drum about 0.01 sec. after the reaction is begun, and leaves it about 0.01 sec. after the reaction is ended.

The regularity of the drum is tested by having an electrically driven tuning fork register continuously for a large number of revolutions without rewinding the drum. There should be an equal number of waves for each revolution. A test for forty-one revolutions showed that the speed did not decrease to any amount that could be detected, and that the average irregularity amounted to 2 per cent.

In a complex reaction the person has to discriminate between two stimuli, and choose between two acts. In one set of experiments two magnetic signals were used. These consisted of two electrical bells, with the knobs bent so that they did not touch the bell. They were thus noiseless and were used as visual signals. They made contact only once, the self-interrupter having been removed. For a movement of the left hand signal the person was to release the left one of the two keys; for a movement of the right hand the right key. The two signals were fastened to a board some distance in front of the telegraph keys. A triple pole double-throw switch was so connected with the telegraph keys that in one position it caused the right hand bell to move, or the white light to flash; in the other position the left hand bell to move, or the green light to flash. An electric buzzer was inserted in each key circuit so that it acted if the wrong key was used. Thus with the double-throw switch in one position, the right hand bell moved, and the right hand key registered a straight line on the drum, just as in the preceding arrangement for simple reactions; but if the left hand key was released by mistake the buzzer interrupted the current, and the magnetic marker registered a dotted line.

In another set of experiments two lights, a white and a green, were used, and also two keys, one for each hand. When the white light was flashed, the person was to release the right hand key, when the green one was flashed, the left hand key.

III. *Interpretation of Results.*

The great advantage of this form of experiment is that it furnishes at once a picture of the quickness with which a person responds to a stimulus, and also of his variability. For a quick person the horizontal lines are near to the vertical line; for a slow person they are further away. For a steady person the ends of the horizontal lines are at about the same distance from the vertical; for an unsteady person their positions vary more or less greatly. Any lengthening of the time or increase of variability is presented at once to the eye without measurement.

When detailed information is desired, the distance from the vertical line to the beginning of each horizontal line is measured by means of the waves of the time line. This gives the reac-

tion times in hundredths of a second. The average of these reactions is taken for the whole record, or for any portion that may be selected.

To obtain the person's variability for a set of reactions the difference is found between the average and each individual measurement, and then these differences are averaged without regard to sign. For example, the first fourteen reactions for a certain normal person are given in the first column below.

Reaction times.	Variations.
0'20	0'007
0'16	0'047
0'21	0'003
0'24	0'033
0'23	0'023
0'18	0'027
0'20	0'007
0'21	0'003
0'18	0'027
0'24	0'033
0'24	0'033
0'19	0'017
0'25	0'043
0'17	0'037
Average . 0'207	Average . 0'024

The average reaction is 0'207 sec. The difference between this and the first reaction (0'20 sec.) is 0'007 sec. The second column gives these differences for the entire set of fourteen. The average of these differences, 0'024 sec., is called the average variation. The average variation is $\frac{24}{207}$ or 12 *per cent.* of the average reaction time. Although computations are made in thousandths, the results are best stated in hundredths in the present case. The average reaction is thus 0'21 sec. and the average variation 0'02 sec. The latter value is a good index of the irregularity of the results. Another value, the mean square error, is a slightly better one, but in the present case it hardly repays the additional labour of computations.

IV. Normal Records.

A typical normal record is shown in Fig. 4; it was made by a physician known for his remarkably equable temperament.

Inspecting the record we notice that the results fall into five groups. There is first a very irregular group reaching through the fourteenth record, which represents the period of "training in." Then there is a regular group reaching from the fifteenth through the forty-fourth, which might be called a period of "steady gait." At the forty-fifth experiment there is a sudden great lengthening of the reaction. This is undoubtedly due to a readjustment in the person's mental condition, which we can attribute to some "distraction." From the forty-fifth through the fifty-fourth there is a steady gain in rapidity as the person returns to his condition of steady gait. From the fifty-fifth through the eighty-first there is a very regular group which again can be considered a period of steady gait. After that the reactions become irregular and longer, representing a condition of "fatigue." The average reactions and the average variations are given in Table I.

TABLE I (Fig. 4).—*Normal Person, A. Simple Reaction.*

	Average reaction.	Average variation.	Average holding time.	Average variation.
1st group, 1-14, training in .	0'20	0'03	0'16	0'03
2nd group, 15-44, steady gait .	0'16	0'02	0'19	0'02
3rd group, 45-54, distraction .	0'20	0'03	0'19	0'03
4th group, 55-81, steady gait .	0'15	0'01	0'19	0'02
5th group, 82-95, fatigue .	0'18	0'03	0'17	0'02
Whole average	0'18	0'02 11%	0'18	0'02 11%

The shortest average reactions are found in the groups of "steady gait," namely, 0'16 and 0'15, the small average variations being 0'02 and 0'01. "Training in," "distraction," and "fatigue" are marked by long reaction times, and greater irregularity. The time of holding does not seem to vary much either in length or in regularity.

The record shown in Fig. 5 is that of a physician of normal temperament. The period of "training in" reaches through the seventeenth reaction; it includes one very late or "delayed" reaction, and one reaction due to anticipation of the stimulus, or "anticipated reaction." The explanation of the latter case is that since the experiments occurred at regular

intervals, the person knew about when to expect them. If he were nervously excited, he would be liable to react before the actual stimulus. This is the "anticipation reaction." The next following twenty-one reactions belong to the period of "steady gait," a condition of confident expectation and reliant self-control. There is, then, evidently a third period reaching through the sixty-third reaction that shows steadily increasing

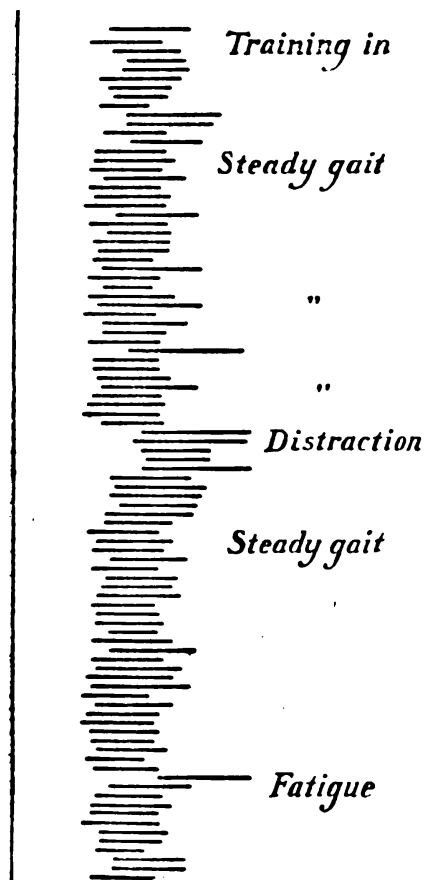


FIG. 4.
Reaction records, simple, normal.

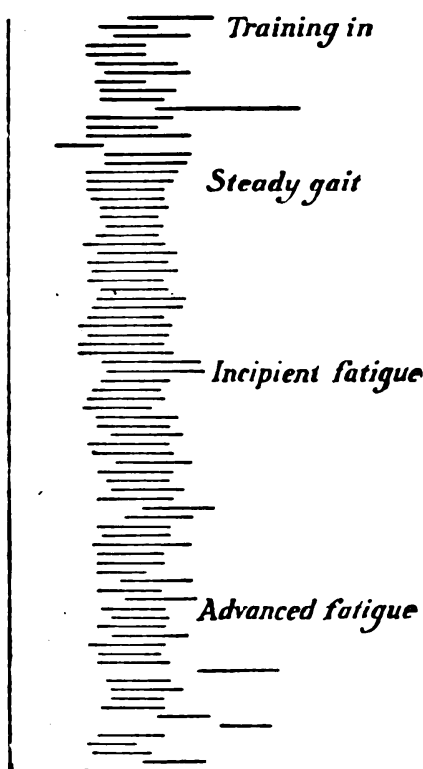


FIG. 5.

irregularity. Such an increase indicates a change in condition, which we can term the "effect of fatigue"; when the change is small it can be termed "incipient fatigue." In the last period the reactions are very irregular, showing a high degree of fatigue. The results are given in Table II.

In this case the period of "training in" shows itself mainly in the great irregularity, the average variation being 0.04 sec., while the average reaction, 0.17, is scarcely different from that of the period of "steady gait." Likewise the average holding

time, 0.17, does not differ. Its quick movements indicate a condition of strong mental concentration; in spite of this the lack of adjustment during the training in is shown by the irregularity. The effect of fatigue on the reaction time is demonstrated quite strikingly in the average variation for the last groups.

TABLE II (Fig. 5).—*Normal Person, D. Simple Reaction.*

	Average reaction.	Average variation.	Average holding time.	Average variation.
1st group, 1-17, training in .	0.17	0.04	0.17	0.03
2nd group, 18-39, steady gait .	0.16	0.01	0.17	0.03
3rd group, 39-63, incipient fatigue	0.18	0.02	0.16	0.02
4th group, 64-85, advanced fatigue	0.20	0.05	0.14	0.01
Whole average	0.18	0.03 17%	0.16	0.02 13%

TABLE III (Fig. 6).—*Normal Person, C. Simple Reaction.*

	Average reaction.	Average variation.	Average holding time.	Average variation.
1st group, 1-6, training in .	0.29	0.04	0.27	0.05
2nd group, 7-31, steady gait .	0.23	0.02	0.23	0.06
3rd group, 32-39, beginning of fatigue	0.20	0.03	0.22	0.02
4th group, 40-58, great mental fatigue	0.13	0.12	0.24	0.05
Whole average	0.21	0.05 23%	0.23	0.05 22%

The record shown in Fig. 6 is that of a physician of equable temperament who was somewhat fatigued. We note that the first six reactions show the usual characteristics of "training in." The reactions that follow through the thirty-first correspond to the condition of "steady gait." We notice that the reactions steadily become shorter as the person gets more accustomed to the experiment. Thereafter the reactions begin to show increasing irregularity, indicating the beginning of

fatigue. The following ones show signs of very great mental fatigue. We note particularly that the first two reactions of this last group show extra movements of the finger. There are also three anticipatory reactions, and several more repeated movements. One reaction anticipates the stimulus by a long time, and the finger is held down longer than in any other case. The results are given in Table III.

The record in Fig. 7 is that of a rather highly strung professor, who had just been lecturing to a large audience; the record was made, moreover, in the presence of a number of

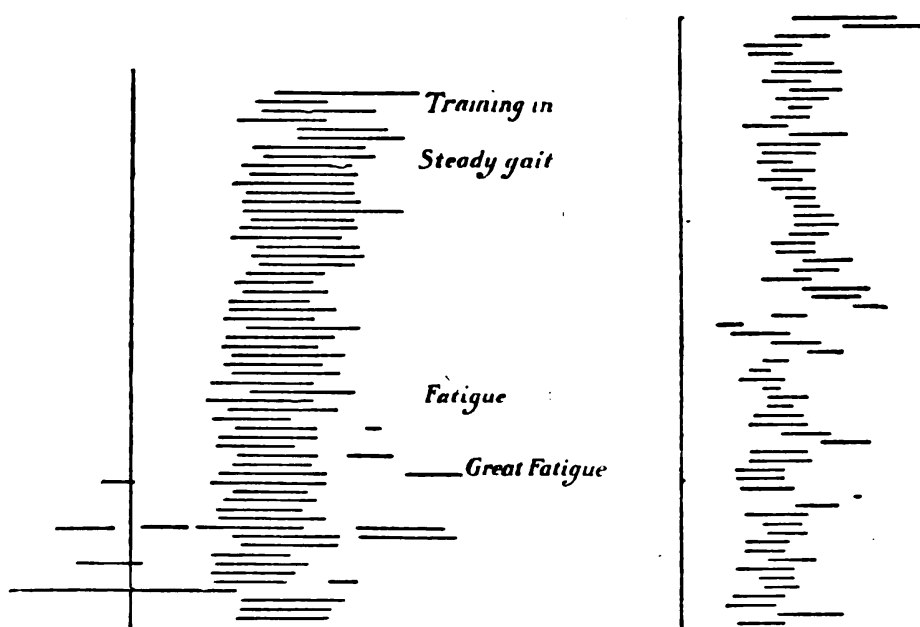


FIG. 6.
Reaction records, simple, normal.

FIG. 7.

visitors. The quick reactions and the sudden release of the key are characteristic of the person's energetic nervous temperament; the great irregularity represents the condition of nervous excitement. The results are given in Table IV.

In this record the results for the first ten are very irregular, owing to the factor of "training in." The next two tens are very regular. Thereafter great irregularity exists, showing the condition of fatigue and excitement.

The preceding records have been those of "simple reaction," that is, response to an expected stimulus of known character by the same movement.

TABLE IV (Fig. 7).—*Normal Person, S. Simple Reaction.*

	Average reaction.	Average variation.	Average holding time.	Average variation.
1st ten	0'20	0'04	0'14	0'03
2nd ten	0'17	0'03	0'10	0'02
3rd ten	0'21	0'02	0'09	0'01
4th ten	0'20	0'07	0'09	0'03
5th ten	0'16	0'04	0'10	0'02
6th ten	0'16	0'07	0'10	0'02
Last eight	0'13	0'04	0'11	0'02
Whole average	0'18	0'04 22%	0'11	0'02 18%

TABLE V (Fig. 8).—*Normal Person, M.*

	Average reaction.	Average variation.	Average holding time.	Average variation.
		<i>Simple</i>	<i>Reaction.</i>	
1st group, 1-23	0'19	0'03	0'10	0'02
2nd group, 24-39	0'15	0'01	0'11	0'02
3rd group, 40-56	0'15	0'02	0'09	0'01
Whole average	0'16	0'02 13%	0'10	0'02 20 %
		<i>Complex</i>	<i>Reaction.</i>	
Whole average	0'39	0'07 18%	0'10	0'02 20%

To introduce a more complicated mental condition, two stimuli were prepared as described above. The person was told to react with the right hand to one and with the left hand to the other. The subject was thus obliged to distinguish between the two objects, and to choose which hand he was to move. The two mental processes of discrimination and choice were thus added to the simple reaction. The lower part of Fig. 8 shows a record of such complex reactions to white and green lights. We note at once the enormous irregularity, and the long average. Contrasted with this is the record of the same person in the upper part of the figure, which shows the simple reaction time for the same person on the same

occasion. The average simple reaction time is scarcely more than one-third of the complex reaction time. The average variation is small. This man's holding time seems to be remarkably constant. The results are shown in Table V.

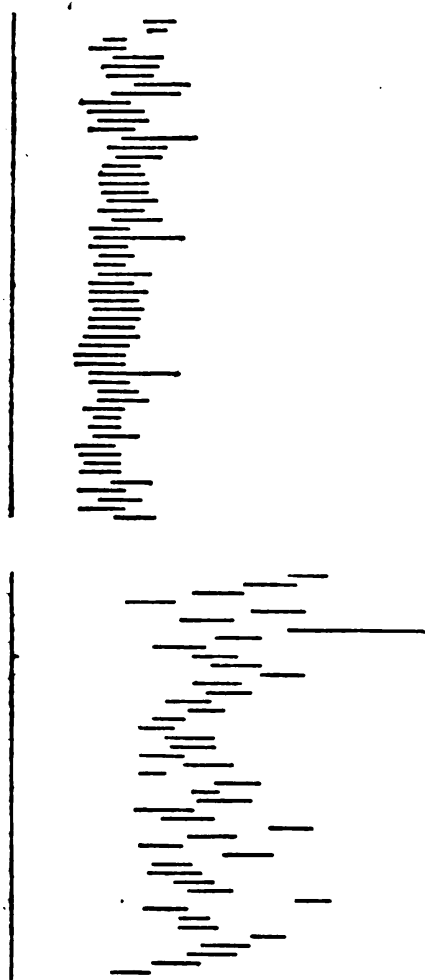


FIG. 8.—Reaction record, simple and complex, normal.

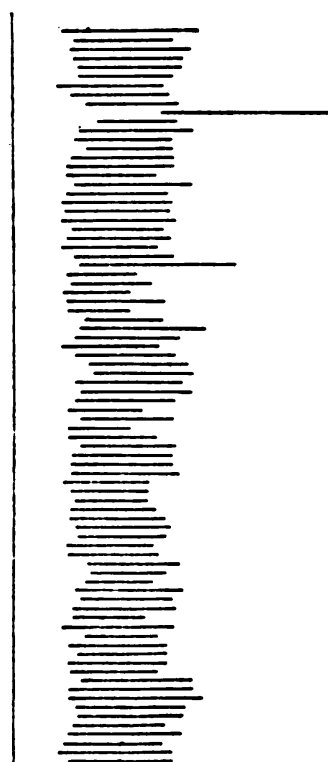


FIG. 9.—Reaction, record, simple, alcoholism, tense type.

V. *Records for Alcoholism.*

The records for alcoholism show three distinct types, all differing from the normal.

One type is that of persons who have been long addicted to alcohol, but who at the present moment are not markedly under its influence. Fig. 9 shows the simple reaction of a confirmed alcoholic who had been abstinent for three weeks. He held his muscles tense and reacted with great vigor; his

eyes and his expression showed fierce attention. For the eighty-two reactions the results were: average simple reaction, 0.14 sec., average variation, 0.02 sec. or 14 *per cent.*; average holding time, 0.22 sec., average variation 0.03 sec. or 14 *per cent.* His reactions were as quick and regular as those of the best normal subjects. This fact has already been observed by

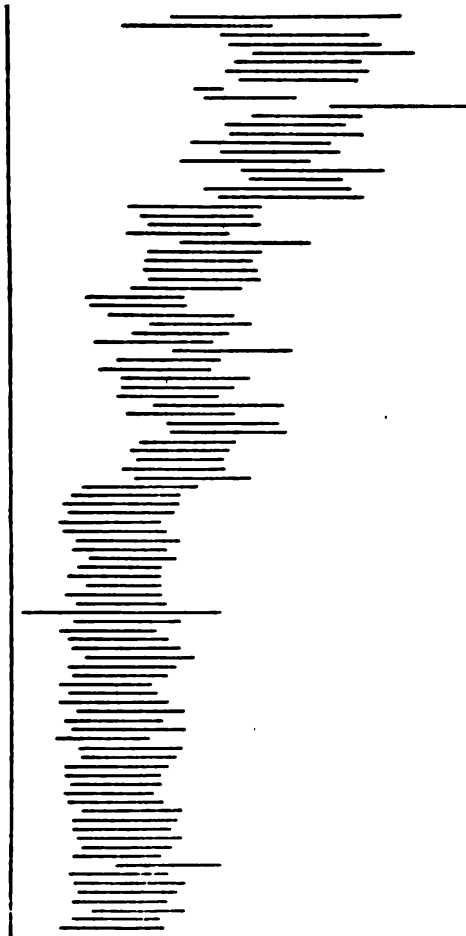


FIG. 10.—Reaction record, simple, alcoholism, sluggish type.



FIG. 11.—Reaction record, simple, alcoholism, disintegration type.

Nadler in the case of alcoholics.⁽¹⁾ There is practically no period of "training in" and no fatigue, although the test included eighty-two experiments. Such a record shows a state of abnormal excitement that may be called "alcoholic tension."

A different type is shown by the record in Fig. 10. The patient is a chronic loafer who lets his wife support him by washing. He drinks beer constantly. The sluggish condition is apparent in the very long reaction times and holding times

at the start. He is gradually aroused; toward the close his record approaches the normal.

The reactions fall apparently into three groups. The first group is very long and irregular; it has an average reaction time of 0.47 sec. and an average variation of 0.06 sec. (13 *per cent.*). The second group has an average of 0.28 sec. and an average variation of 0.04 sec. (15 *per cent.*). The rest of the record is evidently the patient's "steady gait," with an average reaction of 0.14 sec. and an average variation of 0.02 sec. (14 *per cent.*). The mind in this case is dull and unresponsive, showing a condition of "alcoholic sluggishness."

A very different condition is that of a patient whose record is shown in Fig. II. He had been four days on a spree, he could not sleep, and he felt that he was on the verge of delirium tremens. His record shows great irregularity. He frequently forgets to react at all. His average reaction is 0.44 sec.; his average variation is 0.11 sec. (25 *per cent.*). The condition expressed by this record we might term that of "alcoholic disintegration." The mind has difficulty in fixing its attention. It acts slowly and irregularly; it often makes mistakes.

A comparison of the results of alcoholics with those of normal persons indicates some rather striking conclusions. It may be suggested that the drinking of malt liquors like beers produces a sluggish condition of mind that is very unfavourable to clearness of thought and action. Further records may be expected to show that the habitual beer drinker is a much less efficient person than the abstainer. On the other hand, many records have shown that the whiskey drinkers respond with greater rapidity and precision than the normal person. This, however, has no bearing on the ultimate effect of whiskey on the nervous system.

VI. *Records for Hysteria.*

The mental inhibition characteristic of hysteria shows itself in the reaction records in great irregularity, unreliability, and hesitation. The hysterical person is keenly sensitive, and is quick to perceive, but the disturbed condition of mind prevents steady, consistent, decisive reactions.

One girl, æt. 19, came to the clinic complaining of her inability to speak above a whisper. Her voice was always like that of a hoarse, shrill whisper. Other symptoms of hysteria

were present. The diagnosis given was hysterical aphonia. In attempts to use the Jung association experiments she would sit motionless; when asked why she did not respond with a word she would answer that she was only thinking of the word given. Her voice returned upon an occasion when the physician put his finger into her larynx. Her reaction records are given in Figs. 12 and 13. The average simple reaction was 0.36 sec. with an average variation of 0.08 sec. or 22 *per cent.* The average complex reaction time was 0.55 sec., with an average variation of 0.40 sec., or 73 *per cent.*; the average complex



FIG. 12.—Reaction record, simple, hysteria.

holding time was 0.72 sec., with an average variation of 0.55 sec., or 76 *per cent.* Both the simple and the complex reaction times and the holding times were longer and more variable than in the case of normal persons. The patient complained of her eyes troubling her. She sometimes gazed vacantly, and apparently did not wake up to the light until after an interval; this reminds us of the vacant waiting condition during the association experiments. These results differ very greatly from those in the normal records. The intermission of action and the irregularity are characteristic of hysteria.⁽²⁾

A patient, æt. 18, had a peculiar hysterical cry. Her record, Fig. 14, shows the characteristics of hysteria. The average

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simple reaction time was 0'12 sec., or 39 *per cent.*; the holding time, 0'44 sec., with or 34 *per cent.*

A man, æt. 28, had para condition of an old man seen record of simple reaction giving and an average variation of holding time of 2'00 sec., or (57 *per cent.*)

Such records with long hesitation, and mistakes are person preoccupied by some hysteria consists in mental disturbance which has been pushed out makes itself felt: the distraction not in consciousness. This uncertainty in action.

VII. *Records*

The records of a number the following three cases:

A patient, æt. 25, had been He had just had a fit in the typical epileptic speech.⁽²⁾ shown in Fig. 15. The reaction time of 0'50 sec.; this is long reactions which range round 0'78 sec., is also much longer.

These facts seem to be connected with the sluggishness of the epileptic is very much longer at the start seems to indicate that the sluggishness

simple reaction time was 0.31 sec., with average variation of 0.12 sec., or 39 *per cent.*; this is much longer than the normal and very much more irregular. The same is true of the average holding time, 0.44 sec., with an average variation of 0.15 sec. or 34 *per cent.*

A man, æt. 28, had paralysis and tremor which copied the condition of an old man seen ten years ago by the patient. His record of simple reaction gives an average reaction of 0.63 sec., and an average variation of 0.20 sec. (32 *per cent.*); an average holding time of 2.00 sec., and an average variation of 1.14 sec. (57 *per cent.*)

Such records with long average times, great irregularity, hesitation, and mistakes are what would be expected from a person preoccupied by some thought. The mental condition in hysteria consists in mental disturbance by an emotional complex which has been pushed out of consciousness but which still makes itself felt: the distraction is by a mental factor that is not in consciousness. This distraction produces delay and uncertainty in action.

VII. *Records for Epilepsy.*

The records of a number of epileptics may be illustrated by the following three cases:

A patient, æt. 25, had been an epileptic for twenty years. He had just had a fit in the clinic. His voice showed the typical epileptic speech.⁽³⁾ His record for a simple reaction is shown in Fig. 15. The record is characterised by a reaction time of 0.50 sec.; this is long when compared with the normal reactions which range round 0.20 sec. The holding time, 0.78 sec., is also much longer than normal.

These facts seem to be connected with the well-known mental sluggishness of the epileptic. The fact that the holding time is very much longer at the start, and becomes shorter at the end, seems to indicate that the mind is gradually aroused from its sluggishness. The average variation for the reaction time is 0.16 sec. (32 *per cent.*); this is also very large when compared with that of normal cases. The average variation of the holding time, 0.55 sec. (65 *per cent.*), is likewise very large. There seems to be a great difference between the first and last parts of the record. The first part, with a reaction time 0.44 sec. (average variation of 0.12 sec. or 27 *per cent.*), and holding time of 1.26

sec. (average variation of 0.69 sec., or 55 *per cent.*) shows a condition of more steady sluggish mentality. The latter part, which has a reaction time of 0.55 sec. (average variation, 0.17 sec., or 31 *per cent.*), and a holding time of 0.28 sec. (average variation, 0.57 sec., or 49 *per cent.*), gives evidence of fatigue and perhaps strain.

A patient, æt. 31, had her first fit two and a quarter years ago, and her last fit one year ago. There was no apparent mental deterioration. Her record, as shown in Fig. 16, indi-

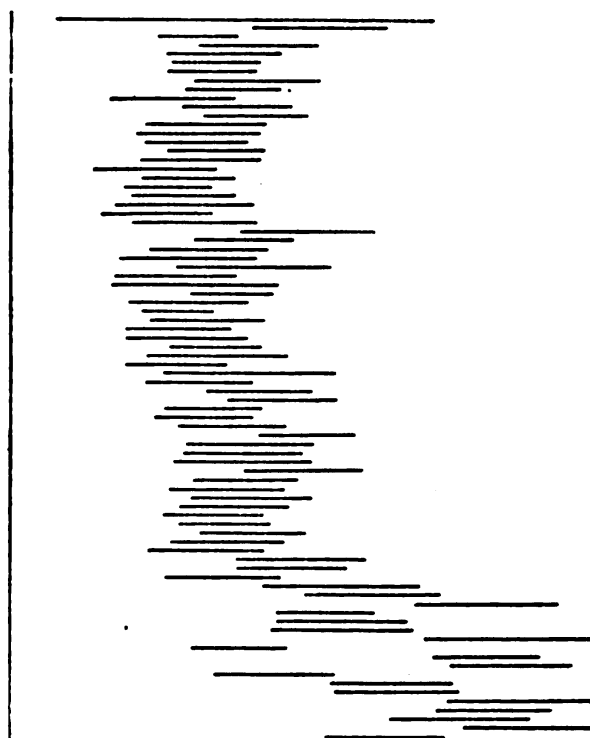


FIG. 16.—Reaction record, simple, epilepsy.

cates three periods like that of a normal person, namely, "training in," "steady gait," and "fatigue." There is a marked difference from the normal in the long time of reaction, and in the long time of holding; the fatigue is also far more marked than in any normal patient. The measurements gave the averages: simple reaction, 0.43 sec. (average variation, 0.16 sec., or 37 *per cent.*).

A patient, æt. 43, had had fits for ten years. Two fits had occurred during the previous week. Her reaction time, Fig. 17, showed great lengthening and great irregularity as compared

with those of a normal person. The measurements gave the averages : simple reaction, 0.47 sec. (average variation, 0.10 sec., or 21 *per cent.*) ; holding time, 0.22 sec. (average variation, 0.05 sec., or 23 *per cent.*).

The mental sluggishness and readiness to fatigue of the epileptic are characteristics strikingly brought out in these

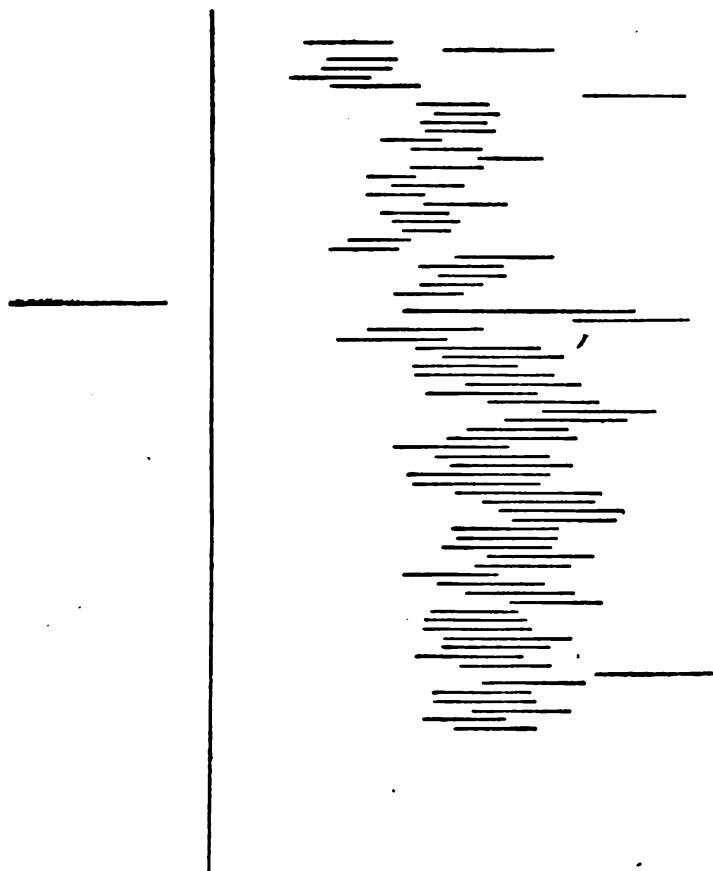


FIG. 17.—Reaction record, simple, epilepsy.

records. The unreliability of the hysterical person, the various mental states of the alcoholic, all give different types of records none of which could be due to such slow and deliberate mental processes as in the case of epilepsy. Even the sluggish alcoholic does not show such deliberateness, especially in the holding time.

The history of the patient often leaves doubt whether the trouble is epilepsy or hysteria. All the well-known symptoms of epilepsy have been counterfeited in some cases of hysteria.

It is quite probable that no condition of hysteria can give up its own natural distracted form of reaction, and adopt the sluggish epileptic form.

VIII. *Records for General Paralysis.*

General paralysis, or progressive paralysis, is characterised by gradual deterioration of the mental powers; there is loss of memory, deficiency of attention, apraxia, etc. Response to a signal is probably as simple a mental problem as any that could be presented.

The patient, J. K—, æt. 35, first noticed his thickened speech and mental dulness two years ago. His record (Fig. 18) gives an average reaction time of 0.47 sec., with average variation of 0.09 sec. (19 *per cent.*); this is about twice the length of a normal reaction time. The holding time, 1.08 sec., with average variation of 0.46 sec. (43 *per cent.*) is extremely long and irregular.

When the disease is in a more advanced stage the characteristics become more marked, as is seen in the record of P., Fig. 19, whose average reaction is 1.24 sec., with an average variation of 0.62 sec. (50 *per cent.*), and an average holding time of 0.99 sec., with average variation of 0.47 sec. (47 *per cent.*). The broken line in the figure is a record of the tremor.

The resemblance between these records and some of those for epilepsy seems to be an indication of the common factor of mental deterioration. It would be interesting to know if similar results are obtained in other conditions of mental degeneracy.

IX. *Comparison of Results.*

The averages for each of the cases reported above are given in the table on p. 719.

X. *Conclusion.*

The life of an organism consists of reactions, or responses to stimuli. Different organisms, and different conditions of the same organism, give different responses. Different nervous and mental conditions show themselves by different responses to sensations.

The preceding investigation had as its object to develop a technique for the simplest kind of reaction in such a way that a result could be obtained quickly and visibly. The ordinary

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reaction time technique gives the results in figures; here the whole reaction picture is presented directly to the eye, with no necessity for measurements.

TABLE VI.—*Summary.*

Type.	Figure.	Kind of Reaction.	Reaction Time.			Holding Time.		
			Average time.	Average variation.	Relative variation.	Average time.	Average variation.	Relative variation.
Normal	4	Simple	0'18	0'02	Per cent. 11	0'18	0'02	Per cent. 11
"	5	"	0'18	0'03	17	0'16	0'02	13
"	6	"	0'21	0'05	23	0'23	0'05	22
"	7	"	0'18	0'04	22	0'11	0'02	18
"	8	"	0'16	0'02	13	0'10	0'02	20
"	8	Complex	0'39	0'07	18	0'10	0'02	20
Alcoholic	9	Simple	0'14	0'02	14	0'22	0'03	14
"	10	"	0'30	0'04	14	0'25	0'03	12
"	11	"	0'44	0'11	25	0'65	0'09	14
Hysteria	12	"	0'36	0'08	22	0'62	0'14	23
"	13	Complex	0'55	0'40	73	0'72	0'55	76
"	14	Simple	0'31	0'12	39	0'44	0'15	34
Epilepsy	15	"	0'50	0'16	32	0'78	0'55	65
"	16	"	0'43	0'16	37	0'26	0'04	15
"	17	"	0'47	0'10	21	0'22	0'05	23
General Paralysis	18	"	0'47	0'09	19	1'08	0'46	43
"	19	"	1'24	0'62	50	0'99	0'47	47

The few diseases already studied show marked reaction types even for simple forms of reaction. It should be quite possible to develop more complicated forms of reaction whose variations will give diagnoses directly in the records. In other words, it is my belief that the reaction test can be made so complete and reliable that a diagnosis of epilepsy, hysteria, general paralysis, etc., can be obtained as surely and accurately as one of diabetes or chronic nephritis from a urinary analysis.

I may be permitted to say that these researches form part of a larger scheme for studying the manifestations of nervous and mental disease in various ways. The variations in speech, which are studied by means of records, show similar results to those recorded here.

(1) Nadler, "Reaction Time in Abnormal Conditions of the Nervous System," *Studies Yale Psychol. Lab.* (Scripture), 1897, vol. iv, p. 1.—(?) Nadler, as before.—
(2) Clark and Scripture, "The Epileptic Voice Sign," *New York Med. Record*, 1908.

Séguin and Physiological Education. A Lecture delivered July 18th, 1916, to the Summer School for Teachers of Mentally Defective Children, at Bedford College, University of London. By G. E. SHUTTLEWORTH, B.A., M.D., etc. Hon. Consulting Physician (formerly Medical Superintendent), Royal Albert Institution, Lancaster, and "Special Schools" Medical Officer, Willesden Education Committee.

I MUCH appreciate the honour of being allowed to supplement your more formal courses of study with regard to mental defectives by a few biographical particulars and personal reminiscences of one who may be designated as the pioneer in their training, and the earliest exponent of the educational principles essential to their mental development. I may add that the principles Séguin laid down some seventy years ago apply to a far wider range than the instruction of imbeciles, and I shall hope to show that his master mind anticipated many of the modern methods which of late years have been accepted by the educational world as recent discoveries. As Mr. Holman well puts it in the opening sentence of his admirable book (1) on Séguin (to which I would at once express my appreciative acknowledgments), "The world has not infrequently had to rediscover its great men after they were dead, though their works lived after them." The voice of Séguin was indeed, in his own day, at any rate as far as general educational science was concerned, as of one crying in the wilderness, and was even derided by the self-satisfied educationalists of the time. His ideas were indeed in advance of the age in which he lived; but what joy would it have been to him to see a summer school of earnest students of the subject nearest to his heart!

Edouard Séguin was born in 1812 of a good Burgundian stock, numbering among his forebears several physicians of repute. Educated first at the Provincial College of Auxerre, and subsequently at the Lycée St. Louis in Paris, he studied medicine at the Sorbonne, where he fell under the inspiring influence of Itard and Esquirol, both eminent medical professors with a penchant for psychological investigation. Itard had, indeed, startled his scientific contemporaries some thirty years earlier by his attempt to humanise and educate the so-called

"Sauvage de l'Aveyron," a boy, apparently about 12 years old, captured in 1798 by sportsmen in the forest of Caune. The boy had obviously been for a long time running wild in the woods and had probably subsisted on small game, roots, nuts and acorns. This creature, more like a beast than a human being, unclothed and speechless, fiercely resisting with his teeth and nails—grown into claws—all attempts to clothe or control him, ultimately found his way to the school for deaf mutes at Paris, then under the charge of Sicard, the successor of the famous Abbé de l'Épée. The case excited much interest amongst the savants of the day, and Itard inclined at first to the opinion that the savagery of the boy was simply due to his solitary life and deprivation of human control and companionship. Various means used for rehabilitating him having proved utter failures, Itard by degrees and reluctantly came to the conclusion that the boy was an idiot. Thereupon he set to work to formulate a scheme of training which he thought would be suited to his condition, and the steps of the process proposed were :

- (1) The development of the senses ;
- (2) The development of the intellectual faculties ;
- (3) The development of the affective functions ;

and thus he unconsciously laid the foundation of the education of mental defectives.

Séguin's gifts as a student, especially his analytical powers and his persevering patience in research, had gained him Itard's esteem, and the young physician became the favourite companion of his old age. At the veteran's house he would often meet Esquirol, then the foremost psychologist of France. We can imagine "the feast of reason and the flow of soul" that would attend the gatherings of so notable a trio. It was indeed through the influence of Itard (whom he refers to as his illustrious master) that Séguin determined to devote himself to the study of idiots, and to think out methods for their improvement ; and in his efforts in this direction he had the cordial assistance and encouragement of Esquirol. In 1837, when only 25, Séguin undertook the treatment and education of a child (Adrian) "almost dumb and apparently an idiot" (to quote the guarded description of the case by Esquirol and Guersant), and these authorities testified by formal certificate in August, 1839, that after eighteen months' careful training Séguin

had taught his pupil "to make use of his senses, to take care of himself, to speak, to write, to reckon, etc." Evidently the "apparent idiot" was of a type superior to that we should call idiotic nowadays; but the fact remains that new and special methods were necessary to initiate progress which had previously been considered hopeless. There is fortunately preserved in Séguin's pamphlet entitled *Résumé de ce que nous avons fait depuis quatorze mois*, originally published in 1839, but reprinted by Bourneville with other memoirs in 1897 (2), a statement of the principles and proceedings which led to so happy a result with this pupil, and this account is also signed by Esquirol as vouching for its correctness. Encouraged by this individual success, Séguin proceeded to open in 1839 a "school for idiots" in Paris, the first "special school" on record. This, though necessarily more or less an experiment, and scrutinised not always in a friendly spirit, justified its existence as time went on by excellent results, and attracted numerous visitors from all civilised countries. It served indeed as a model for developments which soon arose in Switzerland and Germany, and later in America and Great Britain.

The success of this "private adventure school"—for such it was, as it had been equipped and carried on at Séguin's personal risk and expense—drew the attention of the public authorities of Paris to the possibilities of amelioration, if not of cure, of what had been previously deemed the hopeless condition of defectives, and Séguin was requested by the Minister of the Interior to give a probationary course of instruction to the poor idiot children at the Hospital for Incurables—subsequently removed to Bicêtre, outside the fortifications—and in 1842 a Government Commission reported so favourably on his work that a further year's trial was recommended, and in consequence of their final report he was appointed director of the Idiot Department of the great Bicêtre Hospital, with which he remained connected until the French Revolution of 1848. Meanwhile, his name as an author was becoming widely known, and amongst his publications we find his first comprehensive essay on the "Theory and Practice of the Education of Children Mentally Retarded and Idiots," being of the nature of a report on his work with those in the public charge, and an article contributed to *Annales d'Hygiène* on the "Hygiene and Education of Idiots." I have here an original copy of his

great work published in 1846 under the title of—"Traitement Moral Hygiène et Éducation des Idiots et des autres enfants arriérés ou retardés dans leur développement, agités de mouvements involontaires, débiles, muets non-sourds, bègues, etc." I have quoted this title at length because I wish you to note that Séguin's studies and methods extended far beyond the lowest types of defectives. This book was crowned by the French Academy, and for many years remained the best, if not the only, guide to the training of defectives on scientific lines. Séguin had not altogether a bed of roses in connection with his public work at the Bicêtre, for there he was confronted by implacable rivalries, and sometimes subjected to unfair misrepresentation. Still his love for his little patients carried him through, and he was constantly excogitating fresh plans for their welfare. So he went on till the political upheaval of 1848 led him to take an active part in the establishment of a Republic, and when this was supplanted in 1850 by the ambitious pretensions of the Prince President (soon to declare himself Emperor), he emigrated, with his wife and young son, to the great Republic of the West. In the United States, whither his fame had preceded him, he soon found congenial friends at the institutions then being organised for the feeble-minded (*e.g.*, the Massachusetts State Institution, near Boston), and he subsequently helped Dr. H. B. Wilbur to get into working order the newly opened New York State Institution at Syracuse. By request he also undertook for a time the direction of the Pennsylvania Institution, a post which he occupied up to 1857. After one or two spells of general practice (*e.g.*, at Cleveland and at Mount Vernon) we find him attracted to the City of New York by the fact that there existed close by—at Randall's Island—a large Municipal Establishment for Idiots, in which he was instrumental in procuring needed reforms, and in organising appropriate teaching. It was in 1866 he published his English work, entitled "Idiocy and its Treatment by the Physiological Method," of which we shall speak later. I have referred to Séguin's occasional spells of private practice; these were undertaken as a means of livelihood, for he had a wife and a young son to maintain, and, unlike certain founders of new systems of education of our own times, had never tried to make money by patenting his inventions, but had generously placed

them at the free disposal of his colleagues and indeed the whole educational world. His experiments and apparatus, however, cost him time and money, and unfortunately he had an invalid wife for whose benefit he undertook several expensive journeys to Europe, and he spared nothing in the education of his son, Dr. E. C. Séguin, whom he subsequently had the satisfaction of seeing recognised as one of the leading neurological physicans of New York. Séguin lived and died a poor man, rich however in his consciousness of self-sacrifice in the cause of humanity, and of the success of his efforts to improve the condition of the most piteously afflicted of God's creatures. Even in the comparatively uncongenial work of family practice his acuteness and originality could not be suppressed. The introduction of the clinical thermometer as a scientific aid to diagnosis interested him greatly, and he devised a special form of it for family use. In 1873 he came to England as a delegate from his medical colleagues to read a paper on "Clinical Thermometry" at the annual meeting of the British Medical Association, held at King's College, London, and this was the occasion of our first meeting. I approached him after the discussion on his paper, and asked him if he were the author of the books on Idiocy which I had read with so much pleasure and profit. "I am the man," said he, "but who are you?" Explanations followed, and I did not leave him till he had promised to pay me a visit at Lancaster, where I was then the young and inexperienced superintendent of the three-year-old Royal Albert Asylum. He came and spent a week with me, and to the inspiration of this visit much of the subsequent success of this institution is due. In 1876, when Dr. Fletcher Beach and I undertook a tour of visits to the American institutions for the feeble-minded, we met again at Séguin's modest residence in New York, where he was leading a widowed life, and devoting himself to literature in the intervals of his medical practice. Well do I remember one evening spent with him—not over walnuts and wine, but the simple fare of "crackers" and iced water—when he discussed with us what we had seen at the various institutions, and startled us by his keen insight into the conditions of each, and his quaint but good-humoured criticisms. One could not be long in his presence without being struck by his penetration and his transparent honesty of character, his ready resource, his

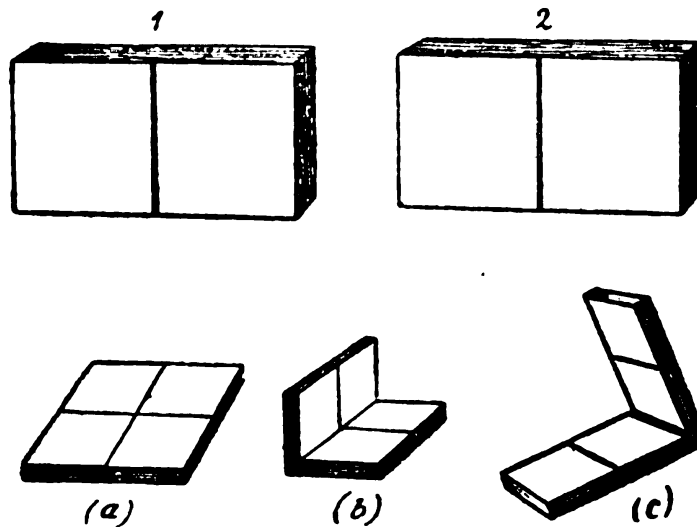
modesty with regard to his own achievements, and his unselfish encouragement to his juniors to take advantage of their more favourable circumstances to surpass them. Séguin has been accused of undue optimism as to the results he attained, but no one conversing with him could doubt his entire sincerity, and his utter detestation of humbug of every kind. In person he was a dapper little man rather below medium stature, neat in his dress, and his expression beamed with intelligence, his eyes piercing you through, and lending force to his quaint precept in his English work on Idiocy that in dealing with the wandering eye of the imbecile "the main instrument in fixing the regard is the regard." In his later days he was a victim to dysenteric troubles, which on October 28th, 1880, brought his useful life to a close, not, however, before he had married, as his second wife, one of his most gifted teachers whose work he had recorded in two of his latest publications, "The Psycho-physiological Training of an Idiotic Hand," and "The Training of an Idiotic Eye." To her he bequeathed the little school—the "Séguin Physiological School"—which he had established with her assistance in New York; and this is now a flourishing establishment for mentally deficient children of well-to-do parents in a charming location at Orange, New Jersey, under the direction of Mrs. Elsie Mead Séguin (whose personal acquaintance I had the pleasure of making in London a year or two ago).

We must now turn from the man Séguin to his educational work. We have already drawn attention to the fact that he claims that the doctrines which he advanced as indispensable for the successful training of defectives were applicable also to the education of ordinary children. I will read two paragraphs from his great book of 1846 which explain his views in this regard (see Holman, *op. cit.*, pp. 30–31):

"From this truly exceptional situation has resulted a work which I believe to be entirely new, not only upon Idiocy but even upon Education. For, in taking as my aim the treatment of young idiots, I was continually led, by the very nature of my subject, to inquire into methods, to weigh theories, and to discuss practices of instruction. Though all the methods which I studied seemed to me to be good for ordinary children, or rather, though the intellectual development of ordinary children renders them excellent, they lost their illusory power in propor-

tion as I attempted to apply them to idiots. None of them was sufficiently complete; none took sufficient account of the psychological and physiological anomalies of which the human being is capable, to be satisfactory to me.

"Thus proceeding always by the method of elimination, in proportion as I advanced in my critical examination of methods, I found myself alone, not only in my attempts at a treatment of idiots, but equally in the work of general pedagogy, which I thus saw myself partially compelled to formulate, day by day, with more and more precision. It followed that instead of the book which I wished to write upon a single subject, I fear I have

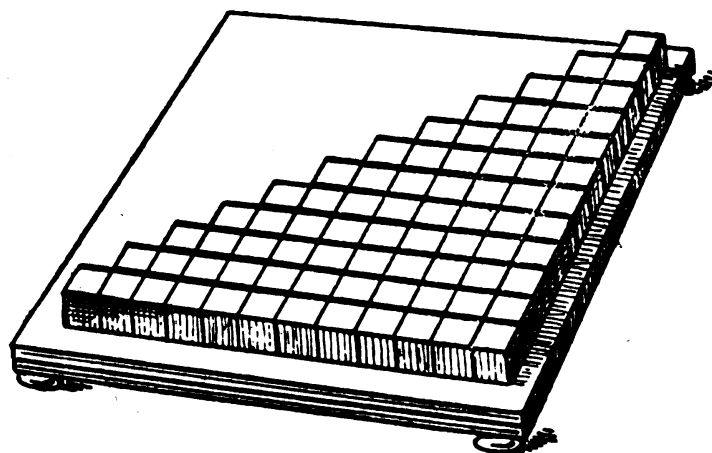


written two: one upon Idiocy, and the other upon Education. For such is the force of logic that one of these questions cannot be resolved before the other; so I have been compelled to resolve the second in order to reach the solution of the first. Moreover, so intimate is the connection of the various theories of anthropology, that, instead of a simple question of idiocy, I have found myself engaged in questions of hygiene, physiology, education and morals, which are inevitably connected with the first."

Holman well puts the main features of Séguin's physiological method of education in the following paragraph (*op. cit.*, p. 50):

"Broadly put, the conclusions at which he arrives are: man is at first predominantly an animal, though always a man in essence; and he must, therefore, be educated primarily through

his activities and his senses. In order that he may finally be the best sort of man his native capabilities will permit, he must primarily be the best sort of animal he can be. In other words, all the physical functions included in his muscles, senses, and nerves must be educated to their fullest efficiency at the moment, as the best means of developing his mind ultimately, since the central brain is dependent for its early development upon the development of local brains. But in all this the educator must ever keep in view the fact that man must always be developed, even from the very first moment, in such a way as to secure a harmonious growth of his powers of body, mind, and will."



Séguin himself, in the course of an address (3) to a New York Medical Society in 1869, after discussing the causes, anatomical signs, and medical aspects of the subject, goes on to speak of the principles of physiological education, which in his view consists of educating the mind through perceptions instead of by pre-arranged reasonings, and on the following axioms :

(1) That if we could take hold of an organ, we would be able to make it produce its function.

(2) That the organs of sensation being within our reach and those of thought out of it, the former are the first we can set in action.

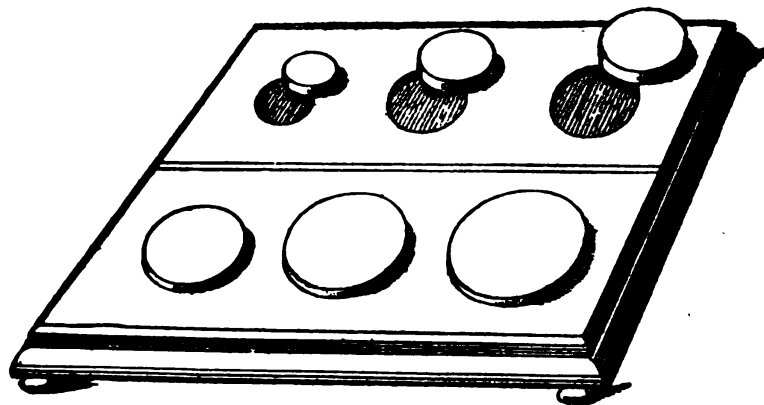
(3) (Consequently) *The physiological education of the senses must precede the psychical education of the mind.*

After illustrating the above propositions by practical instances (e.g., in the history of the Aveyron Savage and of Caspar Hauser

as contrasted with the results of purely intellectual education, which he says produces fools and pedants, not true scholars), he concludes his thesis with the assertion that "*the physiological education of the senses is the royal road to the education of the intellect; experience, not memory, the mother of ideas.*" Elsewhere he sums up briefly his method with defectives on the following lines :

- (1) To exercise the imperfect organs so as to develop their functions, and
- (2) To train the functions so as to develop the imperfect organs.

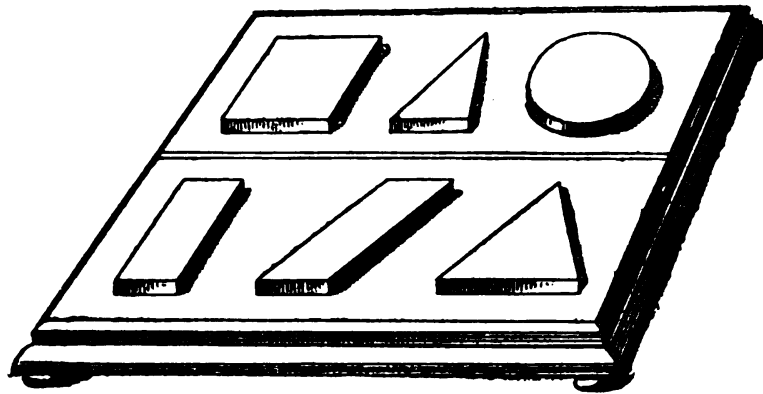
Unfortunately time does not permit us to pursue these principles into their varied educational applications. It must suffice



to remark that the reforms of recent years in the curricula of schools, such as the gradual reduction of mere memoristic learning and parrot-like repetition, and the substitution of systematic exercises of the muscles, of the hand and of the eye as well as of the ear, in other words of physical and manual instruction, follow from these principles. Of the various devices invented by Séguin for finger drill and sensorial gymnastics I can but briefly speak, but many of them have been incorporated into the Montessori "pædagogic material," not indeed without acknowledgment by the distinguished foundress of the system (herself originally instructress of defectives), though I may add that their source is often insufficiently recognised by her followers. I show you specimens of Séguin's educational appliances introduced into the Royal Albert Schools after my visit to America in 1876 (kindly lent for this occasion by my friend and successor

Dr. Coupland), and I think those familiar with the Montessori "didactic material" will trace their resemblances. In my opinion the alterations introduced are not altogether improvements; but after all it is not so much the exact form of apparatus that matters as the intelligent spirit—the Dottorressa calls it "Spirituality"—in which it is used.

Had time allowed I should have liked to refer to Séguin's efforts to obtain for the poor children of the crowded quarters of New York the benefits of open-air teaching by the establishment of what he called "garden schools" in the public parks and squares. I have here his plea on this subject published in 1878 (4)—another proof of his pioneer prescience in a cause



which is only just now coming into accomplishment here through the tardy official approval and advocacy of open-air schools.

In conclusion let me quote one pregnant sentence from Séguin's English book on Idiocy which shows the spirit in which he regarded his relations with his pupils: "To make the child feel that he is loved" (he writes), "and to make him eager to love in his turn is the end of our teaching as it has been its beginning."

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The Cerebral Associations of Raynaud's Disease.⁽¹⁾ By
HUBERT J. NORMAN, M.B., D.P.H. Captain (Temp.),
R.A.M.C., County of Middlesex War Hospital.

IT was in 1862 that Maurice Raynaud first made public his description of the condition with which his name has since been associated, and his Thesis for the Doctorate in Medicine has now become a classic in medical literature (1). Although there may be meticulous critics who will dispute his claim to priority in the delineation of the disease-complex known as Raynaud's disease, there can be no doubt that it was he who first succinctly and clearly described the condition. To use a phrase which is apposite in dealing with such a subject—it was Raynaud who first drew a "line of demarcation" between the symptoms characteristic of his syndrome and those typical of gangrenes in general. In his own words, he was dealing with "a very limited corner of the general history of gangrenes." In the present paper it is proposed to remain within still stricter limitations, yet even there the amount of clinical material is not inconsiderable. There is an additional interest, too, from the fact that Raynaud, especially in his later researches (2), became more and more convinced that the explanation of the peripheral symptoms should be sought in some change in the central nervous system.

It may be of interest briefly to summarise Raynaud's description of the peripheral changes which are to be seen in this disease. In the mildest degree there is local syncope in which the toes, fingers, nose, or ears are yellowish-white, cold, numb, insensitive to touch; next there is local asphyxia, in which the fingers, for example, are cyanosed; and thirdly, the condition may become more marked and gangrene may result. According to Raynaud these are degrees of one condition. The point upon which he laid most stress is the symmetrical nature of the disorder, there is, he said, "une remarquable tendance à la symétrie" (3).

This tendency to symmetrical involvement is the most characteristic feature of the condition differentiated by Raynaud. It is almost needless to say that not all degrees of the disorder occur in a particular patient, although cases have been recorded in which they have all been observed.

Such an obvious and intractable condition as gangrene was

certain to attract the attention of observers. From Hippocrates onwards it has formed the subject of much discussion and speculation.⁽³⁾ Raynaud realised this fully, and he devoted some time to the consideration of the work of his predecessors, but he came to the conclusion that little work had been done before his time in regard to the question of gangrene resulting from disorder in the nervous system. One observer, Zambaco, he considered, however, as going too far in the opposite direction (4). Zambaco, whose material was drawn chiefly from among the insane, believed that if the function of the nervous system is interfered with, it alone can bring about gangrene without any lesion in the vessels. Racle, writing in 1849, described a form of gangrene with nervous phenomena (5). He did not draw attention to the symmetrical nature of the affection, but he did not complete the writings of the papers in gangrene. His brother, however, informed Raynaud that he had been much impressed by the symmetry of the lesions (6). An interesting case, which Raynaud appears to have overlooked, was published in the same Journal as Racle's memoir. It is that of a Mulatto in Brazil, recorded by Rapillaud (7). Monro has given a historical sketch of cases prior to the publication of Raynaud's thesis which approximated to Raynaud's disease or were actual examples of it (7a). While Raynaud himself quotes in his thesis cases described by Lachmund (1676), Hertius (1685), Bocquet and Molin (1808), Rognetta (1834), Godin and Portal (1836), Topinard (1855), and Bernard Henry (1856). It is clear, therefore, that even the minor degrees of this condition had been noted before Raynaud wrote, but it was left for him to make the generalisation and to marshal the facts in an orderly way.

In enumerating the predisposing causes, Raynaud notes that those chiefly affected are persons of a "nervous or lymphatic" temperament, and in the history of the patient he lays stress upon the influence of neuroses, especially hysteria and epilepsy. Several cases which I have had the opportunity of observing—among them, three soldiers who have been in active service—and a brief survey of the literature of the subject, have served to strengthen the impression of the importance of the nervous element in the production of this disorder. To deal with the condition from all points of view, even in a cursory manner, would entail the expenditure of much time and energy; it may

not, however, be without interest to gather together a group of symptoms illustrating one aspect of Raynaud's disease, and to note the cerebral disorders which may be associated with it.

"Hysterical" Symptoms.

Among Raynaud's cases there are some which exhibited markedly the "hysterical" element. One (Observation 2), a young woman, æt. 25, who suffered from local syncope, had "quelques attaques de nerfs, avec perte de connaissance, sensation de boule, pleurs et rires involontaires." A young soldier (Observation 3), also with local syncope, when electrical treatment was tried became hysterical, "Larmes, cris, désespoir, sans perte de connaissance." Raynaud notes the predominance of the nervous element in this instance. In another case (Observation 8) which he quotes from Landry (8), that of a young woman, æt. 22, the symptoms were still more marked. With the local asphyxia there was such intense pain that the slightest touch produced convulsions. Later in the attack the pains recurred, and the convulsions became so marked that it was necessary to restrain her "on était forcé d'attacher la malade." He notes that there was no *globus hystericus*. The fits, which continued for nearly two months, were not apparently epileptic but hysterical. Nine months later, when she was pregnant and had improved in health, her husband died, and she had violent convulsions followed by "délire nerveux" which passed in three days. Another interesting symptom—which will be referred to again—was noticed at this time, namely, "complete aphonia." At times there was analgesia of almost the whole of the body, without anæsthesia. Later in the attack she attempted suicide by taking laudanum; she became comatose but rallied and recovered from this. She is stated to have had no recollection of this incident. She improved for a time, but died later of phthisis. Raynaud, commenting on this case, remarks that "the hysterical convulsions always accompanied the paroxysms of pain in such a way that it is legitimate to place them to the account of the latter . . . in proportion as the malady developed and became established, the nervous symptoms became generalised and aggravated, aided by moral emotions of which the influence was undoubted" (9).

Observation 9 deals with a female, æt. 30, who had, when a

child, lived in bad hygienic conditions and been maltreated by her parents. She gave a history of hysterical symptoms at about the time of puberty, and since that time she had had hysterical attacks at times of emotional stress. At the age of 27, as a result of a fright, she had amenorrhœa, dead fingers, and local asphyxia. Her condition varied, but generally became worse; in addition to the Raynaud there was profound cachexia. As a result of hearing of her father's death she had a violent "nervous attack," and was insensible during a whole night. There was slow but progressive mental enfeeblement, cerebration slow, and she was easily fatigued mentally; there was steadily increasing difficulty in hearing. This case ended fatally.

Observation 15, a female, æt. 27, had local asphyxia in hands, feet, and nose: dry gangrene of extremities. After weeks of acute pain and loss of sleep there were three days in which she was subject to disorientation for about ten minutes on waking. This was followed by hysteriform attacks, throbbing in the head, and a feeling as if she would fall.

In case three of Raynaud's "New Researches" he notes a sudden loss of consciousness associated with left hemiplegia.

Hale White considered a case of Raynaud in a girl, æt. 16, an orphan who had been much neglected, as being "decidedly hysterical" (10).

The term "hysteria" is generally a rather unsatisfactory one. Frequently it appears that symptoms which do not fall into more definite categories are heaped together under the name of hysteria. Rheumatism and hysteria have more offspring fathered upon them than they can reasonably claim. Raynaud may have been right in calling the seizures in, for instance, Observation 8 hysterical: but it is not unreasonable to suggest that they might have been to a considerable extent spasmodic, and secondary to the vasomotor condition. Monro appears to be of this opinion in regard to Observation 15. The "hysterical phenomena," he says, "seem to have been due to the exhaustion and pain caused by the vasomotor disorder in one who had previously been neurotic" (11). It has been said that "hysteria may mimic all other maladies": but the same writers remark that the greatest danger arises from failing to appreciate the limitations of hysteria and allowing its presence to interrupt careful search for organic disease of which it

may be a secondary expression" (12). It is more necessary to heed this warning in such a condition as Raynaud's disease, where there undoubtedly are in certain cases changes in the cerebral circulation. Until, however, we know the etiological factors in hysteria and epilepsy, discussion of details is likely to be barren of results. Nor is knowledge much further advanced when we come to consider the "congestive attacks" and the seizures of general paralysis of the insane, infantile convulsions, or the fits of chronic alcoholics. Are the fits primarily associated with the nerve-cells or are they secondary to changes in the circulatory system? To this we have no satisfactory explanation.⁽³⁾

The convulsions of an hysterical nature already mentioned shade almost indefinitely into seizures of a more obviously epileptic nature associated with Raynaud's disease. Nor is this surprising when we realise how difficult it is to draw any distinct line between the various forms of convulsions. Nature does not proceed by leaps and bounds. The hiatuses described are blanks in our knowledge rather than definite intervals between one series of facts and another; and, however convenient they may be for purposes of description, they are inimical to a proper perception of the uninterrupted processes of Nature. So it is difficult to decide where in the present instance hysterical phenomena end and those of epilepsy begin. In Raynaud's nineteenth case, that of a female, æt. 32, in whom were observed local asphyxia and gangrene, there was a history of "epileptiform" attacks; and Raynaud's justifiable comment is that, "*les antécédents epileptiques de la malade doivent ici entrer en ligne de compte.*" In this case also there was apparently moral defect, for he tells us that she was arrested in several cases for vagabondage. Southey has recorded a case of a child æt. $2\frac{1}{2}$, who died thirty-two hours after the onset of the disease. Convulsive attacks occurred two hours before death, increasing in frequency up to the time of death (13). Thomas had a patient, a man æt. 26, who had local asphyxia of the ears and dead fingers; at this time he had the first convulsion. During the following summer he was better. In the winter there was local asphyxia of the ears and syncope of the hands and feet. There were then convulsions every day and as many as three in the day. "Whenever he went out in the cold weather, a fit was certain

to come on. The attacks always began with a chilly feeling, as if cold water were being poured down his back ; this sensation lasts long enough for him to find a place upon which to lie down ; he then loses consciousness and becomes convulsed. The attack lasts about half an hour, and after it he feels weak and has headache." The local syncope occurred at times in this case without fits being associated with it. The fits did also take place during cold wet weather in summer. After three winters the convulsions ceased but the other symptoms continued ; while after another three years, when there was asphyxia of nose, ears and fingers, there were no further convulsions, but abdominal pain (14). Osler describes an anomalous case, that of a German girl, æt. 13½, who came of a neurotic family. At ten years of age she had (?) chorea : " This was followed immediately by three groups of symptoms, *viz.* : painful swelling of the legs, painful swelling behind the left ear, and falling attacks. . . . At first, and for a year, she would fall forward, two or three times a day, on her hands and head, and, unless caught, would roll on the floor. There was no sound, no convulsion, and probably no loss of consciousness, but of this she is not sure. For the last two years she has always had time to get to a chair or lounge, never loses consciousness, and it never lasts more than five minutes, and often only a few seconds. During these attacks she feels faint and powerless" (15). There is here possibly a condition less marked than in the definitely convulsive cases already mentioned : and one analogous to minor epilepsy. In another case, a little girl who had a condition allied to Raynaud's disease—cyanosis of both lower limbs nearly up to the knees—there were " some ill-defined epileptoid attacks followed by some paresis of the lower limbs" (16). Colcott Fox narrates a case, a woman, æt. 41, " of spare habit and with an anxious face and intensely nervous temperament." He said that she was a " dreadful sleeper," especially after the slightest worry or excitement, and she had had several severe hysterical attacks on similar provocation. He describes her as " excessively nervous, hysterical and emotional" (16a). Levi and Raymond describe the case of a woman, æt. 43, who had Raynaud's disease of hands, feet and forearms. She was " undoubtedly hysterical," and she had convulsions, polyuria, etc. Another case they describe as hysterical and easily

hypnotisable (16*b*). Solis-Cohen, dealing with an analogous—if not a similar—condition, acroasphyxia, describes the case of a woman, æt. 25, who suffered from constant headache for three or four months and who had occasional attacks of dizziness. In another case by the same author, a woman, æt. 19, who was “easily excited,” there were mild epileptic attacks. In a third case, in addition to other symptoms there was on one occasion a “transient partial obscuration of consciousness” (16*c*).

In a case of Osler's he records occasional attacks of “dizziness and transient obscuration of consciousness,” paresis and aphasia.

Epilepsy.

Raynaud's disease has been noted in several cases in association with definite epilepsy, and with epileptic insanity. Here the local symptoms have been subsequent to more or less prolonged epileptic trouble. Case 19 of Raynaud's thesis, which has already been referred to, would probably fail to be included in this category. In a case of Féré's (17) he was unable to obtain a definite history as to which condition preceded the other. It is that of a man, æt. 48, who had his first epileptic fit at 41, and who had had twelve up to the time when Féré saw him. The patient stated that they all occurred during the winter; but more frequently he had had attacks of vertigo with loss of consciousness. He also exhibited a curious condition, a disseminated asphyxia over the body. (In a case of symmetrical congestive mottling of the skin reported by Cavaſy there were no cerebral symptoms) (18). Féré came to the conclusion that as the epileptic manifestations and the circulatory disorders seemed to have developed about the same time, and as they both showed marked predominance during the winter, it was permissible to establish a relationship between them. If this were so it would, as Féré points out, lend support to the angio-neurotic or sympathetic theory of epilepsy, a theory attributed to Schneevogt and also to Charles Bell.

Bland recorded a case, a man, æt. 23, who had epileptiform seizures for ten years previously and who, at the time when he developed the symptoms of Raynaud, was acutely maniacal (19). I am able to add to this the case of a man æt. 35, who had had epileptic fits for at least seven years. He had

recurring attacks of epileptic furor; he was at these times violent, intractable, and destructive; and, also, during the phase of excitement, he was much influenced by auditory hallucinations. During a maniacal phase he developed an inflammatory condition of the forehead which was suggestive of erysipelas, but which was not definitely so: this descended downwards to the face, and passed off in the course of a few days. After it had lasted two days local asphyxia of both feet was noticed which subsided, except from the toes, which were gradually becoming more gangrenous when death resulted. The feet had been exposed to cold about this time, as the patient tore all his clothing off and would not allow cotton wool and bandages to remain on his feet.

Bernstein has reported a case of Raynaud's disease associated with epilepsy (20). In Wigglesworth's case, an epileptic and insane woman who suffered from chronic Bright's disease with secondary hypertrophy of the heart, there was gangrene of fingers and one great toe. In addition she had peripheral neuritis in all four limbs (21).

Mania and Melancholia.

The occurrence of the symptoms of Raynaud's disease have been noted in association with epilepsy, and with the maniacal phase in epileptic insanity. They have also occurred fairly frequently in mania not dependent upon epileptic excitement, in melancholia, and in the depressed phase of manic-depressive insanity. In a case of Southey's, a boy, æt. 9, in whom gangrene of the right index finger developed, there were maniacal symptoms. He was nervous, excited, cried constantly when examined or spoken to; and he was noisy, especially in the evenings (22).

Barlow says that Southey informed him that "since the publication of this case he had seen several examples of Raynaud's disease in asylum cases": the type of case is not specified (23). Edgerley gives a case, a woman who had been in an asylum "for some years," and who during the early part of her stay had long periods of comparative sanity. During the maniacal attacks she was noisy, incoherent, destructive, and covered herself with dirt. Whenever the mental relapses occurred, her hands showed characteristic signs of Raynaud's

disease. At first local syncope and then local asphyxia. During remissions of mental symptoms her hands resumed their normal appearance. (The same author records a case which may be compared with Féré's. A woman, æt. 37, who had had three previous attacks, developed ecchymoses over her body and limbs at the height of the excited period. Such a case, though not one which Raynaud would have included in his category, is interesting from the point of analogy. It might be more properly associated with the cases of "stigmata" upon which much stress is laid by many of the devout: more especially as she had delusions that she was being crucified and stoned) (24). Macpherson relates the case of a girl in whom the vasomotor symptoms set in four days after her admission with acute mania. At the outset, however, a week before admission, there had been depression with suicidal impulses instead of exaltation (25).

In manic-depressive insanity the symptoms of Raynaud's disease may appear either during the maniacal or during the depressed phase. Ritti noted in his cases that it was during the stage of depression. Esquirol (26), among others, has called attention to the alteration in the peripheral circulation which occurs so frequently among the insane. In Ritti's first case, a woman, æt. 28 on admission, there is a history of mania for a number of years with occasional remissions. Later, definite alternations are noted, each phase lasting from ten to fifteen days, and at this time there were lucid intervals between the attacks. After a time, however, the attacks of mania and melancholia followed one another without intermission. Frequently during the depressed phase she had local syncope and local asphyxia of the fingers of both hands, but always one hand at a time and only certain fingers. In his second case, a woman æt. 41, there had been an attack of acute mania, at the age of 27. This lasted for three months, and she then became depressed. After this she was normal for a time, then for several years there were periodical attacks of boulimia lasting about eight days. From the age of 35 and onwards excitement and depression followed one another without any intervals. When the symptoms of Raynaud appeared it was in the form of local syncope and local asphyxia of the hands and feet. Ritti remarks that he never observed them during the maniacal phase (27). In contradistinction to this I have observed a case of

manic-depressive insanity in which there was local asphyxia, and later symmetrical gangrene of the toes and of the tissues for about an inch and a half above them. This was in a woman, æt. 37, who had six months prior to admission been depressed and had attempted suicide. On admission she was maniacal, noisy, restless, incoherent in speech, sleepless, unclean in habits. The symptoms of Raynaud's disease appeared after about three weeks of this intense excitement. In another case there was a history of two previous attacks of mania, but no record of any pronounced periods of depression. She remained acutely maniacal for two months after admission. Her left forearm and hand were first affected with swelling and then discoloration; this disappeared and then the right leg and foot were attacked. Next the left lower limb and side up to the axilla were affected. Later, symptoms of gangrene appeared in the feet.

Urquhart recorded a case of Raynaud's disease in association with melancholia. The patient was a woman, æt. 50. There was a history of one sister having had puerperal mania, and another sister was said to have committed suicide. The melancholic symptoms had lasted for three years: she was restless, deluded, had ideas of impending ruin and of her unworthiness; she was also suicidal. Two years prior to the symptoms of Raynaud's disease—local asphyxia in both feet—she developed left hæmatoma auris (28). In a case reported by Shaw there were melancholic symptoms, delusions of poisoning, and suicidal tendencies (29).

Targowla tells of a man, who, at the age of thirty-six, began to suffer from melancholia with suicidal impulses and insomnia. Raynaud's phenomena began about a year earlier than the mental symptoms. According to Targowla the attacks of melancholia and of local asphyxia did not appear to exert any influence on one another (30).

Another of Urquhart's cases exhibited symptoms more suggestive of dementia præcox. It was that of a man, æt. 33, who had always been "nervous and flighty." Seven years prior to admission he had yellow fever. He became mentally confused, made mistakes, and was unable to work. He was obstinate and resistive; he was depressed and had hypochondriacal ideas, such as, that he could not straighten his legs, that he had no feet or stomach. He was at times excited and

restless. He had a habit of crawling on the floor, squeezing into corners or underneath furniture, and when thus placed lay stark and still. He was persistently wet. He developed hæmatoma auris on both sides, and later local asphyxia of both feet. Later there was gradual exhaustion and death (31). I have observed a case of dementia præcox with marked negativism, restlessness, apathy, and progressive mental enfeeblement, who developed local asphyxia in both feet with patches of desquamation. He was at that time æt. 25, and his mental symptoms had lasted for several years. Another case, a female, æt. 23, was stated to have begun to show mental symptoms at 21. She gradually became mentally enfeebled; she was confused, unable to converse, and childish. She was at times excited, restless, violent, occasionally thought that she was going to be burnt. She developed recurring local asphyxia of both feet.

The following cases I have had the opportunity of observing at the County of Middlesex War Hospital among soldiers who have been on active service: Pte. A. B—, æt. 19, went to France in April, 1915, and was in the trenches and under fire. In October he was sent into hospital with "bad circulation." It was reported that on parade he did not appear to understand the orders given, and sometimes wandered from the ranks. He complained that things were stolen from him. He rambled about at night, and was much influenced by auditory hallucinations. He was depressed and wept. He was deluded and said that "chloride of lime was being sprinkled over blood in the next room." He was dull, stupid, and confused, cerebration slow, memory defective. He had typical recurring attacks of local syncope and local asphyxia in the fingers and toes. He improved steadily and became bright and cheerful. After the mental improvement had become pronounced the circulatory troubles still continued, and later he had an attack of aphasia to which reference will again be made.

Private C. D—, æt. 21, went to France in January, 1916; he was in the trenches for five days. Whilst there he was heavily shelled but was not struck or buried. On the last day which he spent in the trenches his officer was shot beside him. He was much shaken, and later was not able to recall events about this time very accurately. He became depressed and was sent into hospital. He was at that time nervous, emotional,

and depressed. He stated that when alone he felt as though someone were following him. He did not hear voices but he felt as if "things were put into his mind." He said that on the day before his admission to hospital in France, he felt that he wanted to jump into the water. On his return to England he was brighter, but still nervous and rather tremulous. The noises in his head he compared to the ringing of bells. For some time he had suffered from headaches, at nights he had "visions which were not quite dreams."

He had local syncope and local asphyxia of the first and second fingers of both hands, and these symptoms recurred from time to time. He had noticed this condition for years. He believed that it came on after he had acute rheumatism and chorea. He said that his mother suffered from a similar condition. Vision impaired; he had observed a progressive weakening of his sight for some years. The right pupil was slightly larger than the left.

This patient gave an extensive history of nervous instability in his family, and of a tendency to vascular degeneration. On the paternal side, his great-grandfather had hemiplegia, grandfather very excitable, became "mad if he took drink," eventually had a seizure and died, grandmother suffered from violent headaches, was of a very nervous temperament, markedly hypochondriacal; a cousin is mentally deficient. His mother is nervous and hysterical. His brother is very excitable, and at times becomes confused and forgetful. This patient himself is sallow-complexioned and nervous. He says that he was troubled by "voices" when he was about 17 years old, and that about the same time he attempted suicide. He says that he was subject to convulsions as a baby.

Private E. F—, æt. 40, exhibited a local condition which approximated to Raynaud's disease, but which might be more accurately described in the category of acroasphyxia. Both hands were from time to time cold and almost syncopal, and this was succeeded by the asphyxial state; in the latter phase the hands looked as if they had been dipped in a solution of indigo. He gave an interesting history. He had had fifteen years' service. In 1906 he was operated on for "tumour" of the left testicle, and the testicle was removed. Just after this he had a "fit," and another one a year later. During these fits he lost consciousness. In 1908, while he was in India, he

had malaria, and it was after this that he first noticed the change in his hands. In May, 1915, he was in France, and was buried by a shell explosion. He had a similar experience later in the year, in September, and he gave a history of gas-poisoning about the same time. In November he went to Salonika. Whilst walking with a friend there he fell down suddenly and was unconscious for about twenty-four hours. He was sent back to England, and on his return was depressed, nervous, and tremulous. At times he was incoherent in speech. On two occasions he attempted suicide in what is described as "an ostentatious manner," and he is reported to have had some fits of an hysterical nature. Since I have seen him there have been no further fits or attempts at suicide. He has, however, been depressed and plaintive. He complained very much about his digestion, and said that he had been unable to retain any food, but this was not noticed after his admission. Gradual improvement took place mentally and physically, but at the time of writing there is apparently some mental reduction, and he is facile and more satisfied with his capabilities than his state warrants.

Mental Enfeeblement.

In certain cases the symptoms of Raynaud's disease in insane patients have been noted after mental enfeeblement had become pronounced, although it does not occur in demented cases to the extent that one might, *à priori*, imagine when the sluggishness of the circulation in such patients is considered. There is apparently some other factor, it may be the involvement of certain parts of the nervous system. Iscovesco has noted the occurrence of local asphyxia in three cases (females) with confirmed general paralysis of the insane (32); Hutchinson in a case of congenital syphilis with defective mental development (33).

The majority of Zambaco's cases which exhibited symptoms of Raynaud's disease were general paralytics (34). A case of Barlow's, a middle-aged woman, during a slight remission of her attacks of local asphyxia, became the subject of delusions which were always worse in the evening (34a). Ibotson relates a case, a woman, æt. 40, who suffered from phthisis, and exhibited progressive mental enfeeblement and who developed Raynaud's disease. The mental symptoms

had lasted six years. She had the delusion that she would find a fortune in a water-closet, and she was continually putting both her hands down to pull it up. She was also influenced by auditory hallucinations (35). Case 16 of the Thesis, though not a case of dementia, was one of profound physical and mental enfeeblement. It related to a man, æt. 34, who had gangrene of fingers and toes. "Le visage, ainsi que tout le corps, était d'une paleur mortelle: les yeux étaient fixés ou roulaient languissamment dans leurs orbites, puis s'arrêtaient comme ceux d'un idiot, ou comme si l'esprit affaibli du malade avait été frappé par quelque objet effrayant" (36). Pitres and Vaillard record a case, a young woman of feeble intelligence from childhood. At 18 years of age she began to suffer from tremors and stiffness of the limbs until at length walking became impossible; the lower limbs passed into a state of extreme contracture, and the patient was bed-ridden and demented. Gangrene of the feet developed, and eschars on the body. *Post-mortem* there were discovered chronic hydrocephalus of the lateral ventricles, undue adhesion of the pia mater to the cortex of the hemispheres, and great thickening of the skull. There was also diffuse sclerosis of the dorso-lumbar part of the cord (36a).

Aphasia.

The occurrence of aphasia in connection with Raynaud's disease is rare. He drew attention to it in his eighth case, to which reference has already been made. From time to time there was a complete loss of speech with inflammation, laryngeal pain, cough, or expectoration. "Cela lui arrive souvent, presque tout à coup, et dure quelques heures ou quelques jours." He noted that no other nervous symptoms accompanied this loss of speech: and he appears to have thought it a part of the hysterical condition: "La malade prétend que c'est par faiblesse qu'elle ne peut pas parler, bien que rien ne dénote une faiblesse générale plus considérable en ces moments" (37). One of the most interesting cases with this symptom is recorded by Weiss. It occurred in a woman, æt. 35, of neurotic tendency both personally and by heredity. The disturbance of speech began suddenly. The patient became pale at the same time: her lips were pale, and

the retinal arteries narrowed to a striking degree. She had difficulty in pronouncing familiar words, and she transposed words or syllables and used wrong ones. Voluntary movement not affected. The attack was at an end in fifteen to twenty minutes, speech being quite restored. A similar attack occurred four weeks later (38). In Osler's case, already referred to, a woman, æt. 47, there were occasional attacks of numbness and mottling of the fingers for five or six years. Then she began to have dizziness and transient obscuration of consciousness. This occurred on three occasions. About a month after the third attack there was aphasia, paralysis of right hand, and paresis of right foot. From all these she soon recovered. Four weeks later she developed complete motor aphasia and spasm of the right hand. In less than a day these passed off. Two months after this there was headache, left hemiparesis, discoloration and tenderness of right hand. This was in February. In July of the same year she had a third attack of aphasia with right hemiplegia. At this time there was local syncope and asphyxia of right hand and fingers, and the tip of the nose was blue. In July of the following year she had again the giddiness and vomiting. This was followed by intense pain in the right hand: the fingers blue and the hand anæsthetic. Speech was on this occasion retained. She gradually became comatose and died (39). Stockman has described a case of a woman, æt. 26, who had local asphyxia of both feet and of the left forefinger, and of the nose and ears. On three occasions she lost the power of the whole of her left side. She could not move her arms or legs and could not speak: on one occasion she felt as if her tongue were fixed and immovable. This lasted about five minutes each time, during which she remained perfectly conscious. On several occasions she had temporary loss of memory during conversation. She expressed it as forgetting what she intended to say. "It was not inability to express her thoughts in words, but a lapse of memory as to what she was going to say. On each occasion it only lasted a few minutes" (40). In Simpson's case, a woman, æt. 60, in whom the symptoms of Raynaud's disease had appeared at the age of 48, there were giddiness and faintness, some paresis of the left arm and of the left leg, and slight aphasia. She was strange and dazed: she had left-sided headache and her sight was dim. The speech defect

lasted till the following day. There was also hyperæsthesia for the taste of sugar (41).

In the case of Private A. B—, to which I have already adverted, aphasia occurred after the symptoms of depression, the delusions, and the auditory hallucinations had passed. He was a bright, intelligent youth, and did not seem in the least hysterical. The aphasic state began on the Saturday morning. He said that he was trying to say something and could not. He had "felt a bit strange in the morning but could speak": and on the day before it seemed to him "as if things were muddled up. He felt limp, and as if he was going to be ill." He could understand what was being said to him but could not reply. He played the piano during the aphasic period, and there were no hemiplegic symptoms. Speech returned suddenly during the following Wednesday night. He said that "he sat up in bed and spoke": and he continued able to speak thereafter. He stated that the muscles of his throat felt stiff and painful. He thought this was because of the efforts he had made to speak.

The association of aphasia with Raynaud's disease is an interesting and rare one. To look upon it as an hysterical aphonia is unsatisfactory. We do not know what hysteria is in spite of elegant explanations—and to explain one incomprehensibility by another advances knowledge little. There may be a figurative and ironical meaning even in the term itself: perchance he who coined the word intended to convey that the true explanation of the condition was hidden in the womb of time! If so, parturition does not yet appear to have taken place.

The explanation given by Weiss seems plausible. He thought that the aphasia was due to a "spastic ischæmia in the region of the third left frontal convolution." A similar condition in other regions of the brain might account for other symptoms. Simpson suggested the varying symptoms in his case could "only be accounted for by corresponding attacks of cerebral anæmia or congestion affecting different areas of the brain." "They are," he adds, "compatible with no single lesion." A case recently recorded of injury in the neck which necessitated ligature of the common carotid artery on the left side is interesting in this connection. The patient "lay in a dull, heavy, stupid condition for twenty-four hours.

After that he gradually seemed to understand what was said to him, but was quite unable to put any of his thoughts into words for several days. . . . The mental dulness rapidly improved, but recovery from the aphasia was a much more gradual process." He was not able to articulate for fourteen days, and then only a few words. Slow recovery of the power of speech followed. There was paresis of the right side for two or three days.⁽⁴⁾

Ocular Symptoms..

In his later researches Raynaud paid much attention to the ocular symptoms. One case, a man, æt. 59, became subject to local asphyxia of the extremities, and a few weeks later to paroxysmal impairment of vision. During the period of asphyxia he could see quite well, but as the digits were recovering their normal colour the sight, especially of the left eye, became dim. Vision was restored at the moment when a new attack of asphyxia supervened. Ophthalmoscopic examination in the period when the discoloration of the extremities was at a minimum revealed narrowing of the arteries and pulsation of the veins. During the period of cyanosis the arteries did not regain their normal calibre, as might have been expected, and the venous pulsations persisted. Yet the cyanosis of the extremities and the visual troubles alternated so regularly that the diminution of one "infallibly announced the appearance of the other, and this many times in the same day." The second case, a young man, æt. 22, was admitted for boulimia and polydipsia, and had cyanosis of hands and face. "At the same moment when a paroxysm commenced, he experienced a notable obscuration of sight, but when the cyanosis passed off, vision was restored." There was narrowing of the arteries during the cyanotic period, with restoration of calibre when reaction set in. The retinal veins were not observed to pulsate (42). Bland's case had for a time dimness of vision and inability to read, with unusual pallor of the fundus. Morgan noticed a narrowing of the retinal arteries though vision was good. After recovery from the Raynaud's disease and after three months' good health, the patient suffered for a time from severe headaches with simultaneous dimness of vision (43). Stevenson has reported a case in which there was on one occasion complete loss of sight for some minutes and at several

other times dimness of vision (44). In a case of Hutchinson's there was iridoplegia. Both pupils were quite immobile, the left was larger than the right. There was gangrene of the nose and left ear. Simpson's patient, it has already been noted, suffered from dimness of sight. Calmette states that in three malarious patients who had local asphyxia, there were also ocular troubles (45). In one of Solis-Cohen's cases, vision was at times misty, in another there was sudden dimness of vision, progressing in the course of a few minutes to total blindness which lasted about a second. This transient blindness recurred, but affecting only one eye.

Private C. D—, whose case has already been referred to, noticed that, in association with the local syncope and local asphyxia, there was increased dimness of vision, particularly in the right eye.

Headache.

Headache is a not infrequent concomitant. It has already been referred to in the cases quoted from Osler and Simpson (where it was left-sided). Wood speaks of a case, a man, where there were attacks of localised pain similar in character to the pain felt in the fingers. It sometimes accompanied and sometimes alternated with the pain in the extremities (46). In the case of Private C. D— there were troublesome generalised headaches. Solis-Cohen noticed in one of his cases of acroasphyxia that there was, associated with visual trouble, intense headache lasting about ten minutes, and in another constant headache for three or four months. In a case of Vulpian's there was occipital headache.

Paretic (Hemiplegic) Symptoms.

These have been noted in several cases. In Raynaud's third case (Thesis) there was apparent paresis of the right arm. In Case 3 of the New Recherches there was hemiplegia of the left side lasting for two hours.

In Simpson's case, associated with the aphasia, there was left-sided hemiplegia; a similar condition was recorded by Stockman. Osler noted at one time affection of the right side with aphasia; on the second occasion, of the right hand again with aphasia; thirdly of the left side but without aphasia; and

at the fourth attack right hemiplegia again associated with aphasia. In the case recorded by Weiss there was diminution of motor power.

Raynaud believed that the motor symptoms were due to defect in the afferent impulses rather than to muscular weakness.

With the hemiplegic symptoms one may associate the condition of the intermittent limp where the patient "after a few steps becomes unable to walk farther, owing to intolerable pain in the muscles of the leg" (47).

Erythromelalgia and Raynaud's Disease.

There is, at times, some confusion in regard to the two conditions. Yet Weir Mitchell, who first described erythromelalgia (1872), remarks that it is inconceivable that these two disorders should ever have been confused, and a glance at his categories of symptoms certainly supports this statement. In erythromelalgia, or "red neuralgia," there is flushing and local fever; in Raynaud's disease the part is either bloodless or dusky and congested, and there is lowering of temperature. In the two cases with which he illustrates and contrasts these conditions there were noticeable nervous symptoms. The case of Raynaud's disease was a woman, æt. 30, pale, nervous, and excitable, who, after a long strain and much work, developed local syncope and local asphyxia in the fingers. The erythromelalgia was in a man. In the course of the disease he became silent and morose; there was paresis of leg and arm; he had nine attacks of convulsions—"or rather of rigidity." He became "more or less hysterical," gradually bed-ridden, had "queer, indescribable feelings in the head," and he disliked all mental effort (48). Although there is dissimilarity in the symptoms there may be some relationship in pathological bases. Weir Mitchell at first inclined to the view that erythromelalgia was due to "some form of spinal disorder," later he considered peripheral neuritis as a possible cause. In Wigglesworth's case of Raynaud's disease there was neuritis in all four limbs, while Pitres and Vaillard held that most of Raynaud's cases of gangrene were caused by peripheral neuritis. Bramann recorded some interesting cases which were possibly related to both Raynaud's disease and to erythromelalgia. In three brothers,

æt. 7, 10, and 13 respectively, there began in each at the fourth year of life a condition characterised by violent pains, great redness and swelling. It attacked almost symmetrical spots on the extremities, and most of these spots proceeded to the state of gangrene. Bramann considered that the symptoms pointed not to vascular but to spinal disease, and he suggested syringomyelia as the most likely cause (49).

Conclusion.

The time has not yet arrived when it is possible to say what is the exact condition in the nervous or vascular systems which give rise to the varied symptoms of Raynaud's disease. This being so it is not surprising that various theories have been promulgated to account for them. Some of the suggestions are rather of the nature of explaining one symptom by another. For example, when the localised headache in a case of Raynaud's disease is said to be due to "localised meningeal congestions," one is still left to discover the cause of these congestions. Raynaud inclined to the view of the central nervous origin of the symptoms. "The marked symmetry of the lesions," he wrote, "ought to suggest that they originate in a discharge either spontaneous or reflex, starting from the cord and radiating thence to the vascular nerves of the extremities" (50). Barlow sums up as follows: "The last development of Raynaud's doctrine . . . is that there is a peripheral excitation, most commonly consisting in an impression produced by change of temperature in the cutaneous nerves, and that whilst in a normal state either very low temperature or exposure for a long period are necessary for the production of more or less analogous effects, in these individuals an insignificant difference is sufficient; further, that the peripheral stimulus affects that part of the grey matter of the cord which presides over the vasomotor innervation, and that a great exaggeration of the irritability of that part of the cord must be assumed . . . Now given the initial slight peripheral stimulus there seems no reason why the central disturbance should not radiate and become manifest in several different regions successively instead of simultaneously" (51). Monro, whose admirable monograph on this condition has rendered all students of it his debtors, thinks that "the phenomena of Raynaud's disease must be brought

about through the agency of the nervous system." As to the particular part involved he says: "Accepting then the theory of an increased excitability of the vasomotor centres in the cerebro-spinal axis, allusion must be made to the situation of the unduly sensitive centres. Raynaud is undoubtedly correct in saying that the part of the cord varies in different cases. The varied distribution and the occasional unilateral character of the symptoms suggest that the disturbance is in the subordinate vasomotor centres of the cerebro-spinal axis. This is doubtless specially true of cases that originate in consequence of severe exposure. On the other hand, cases that are due to emotion have their source in cortical disturbances, and these will, no doubt, operate through the principal centre in the medulla. If a subordinate centre in a given limited area has once been rendered over-excitabile, through exposure or otherwise, cortical discharges, such as those connected with emotion, may at any time call forth paroxysmal overaction limited to the over-sensitive region. The theory of a cortical starting-point for the vasomotor discharge is favoured by the frequent association with such functional disorders of the cortex as insanity, epilepsy, etc." (52). Purves Stewart suggests that "profound molecular changes exist . . . in the sympathetic system" (53). Lévi and Raymond lay stress upon the emotional factor. They think that the vasomotor phenomena in Raynaud's disease and in erythromelalgia have their origin in certain emotions which give rise to subconscious fixed ideas. Among their general conclusions are the following: (1) There is a form of Raynaud's disease which is purely hysterical. It may originate or reappear under the influence of a moral emotion or shock, it may disappear or be improved by hypnotism, but there remains a vasomotor system easily affected. (2) Acute rheumatism is frequently found in the antecedents of patients, and may determine the localisation of hysterical manifestations. (3) The onset is sudden, the origin emotional. The disease is psychical. (4) The central theory must be accepted, that is of a neurosis with localisation in the cerebro-spinal centres (54).

Those who incline to the so-called "psychic" agency in the production of such symptoms as are seen in Raynaud's disease would do well to remember that he looked upon those differing symptoms as degrees in one condition. So with the exciting

factors it is a question of the strength of the stimulus, but there is at the same time the response of the organism. Where the instability of the nervous system is so marked that it responds to minimal stimuli the tendency is among certain people to place the results in a category which is marked off from all others. Thereafter it is only a question of personal predilection as to whether they are labelled psychic, spiritualistic, or miraculous, or by those who, admitting in their very phraseology their incompetence to see, designate the facts as hidden or "occult," and then quarrel with anyone who endeavours to illuminate the dark places—and they are many—of their scheme of things.

Emotion as at least an exciting factor has been frequently noted. Noyes records a case, a woman of nervous temperament, in whom attacks were produced by cold and emotion. "Three or four separate attacks have been observed to occur in rapid succession whilst the patient was under examination . . . owing to emotional excitation" (55). In Stockman's case, "cold, mental excitement, worry, and slight traumatism" brought on the attacks (56). Colcott Fox notes regarding his case that "the extremities were affected in a second if she was startled by a sudden knock at her door or any unusual occurrence" (57). Solis-Cohen thinks that in certain individuals there is a congenital want of balance in the circulatory apparatus. "Mental or even physical shock in a subject of congenital vasomotor ataxia might cause the sudden development of exophthalmic goitre, and an exposure to cold from which a normal individual would quickly react may cause local asphyxia, chilblains, frost-bite, or even gangrene" (58).

In certain cases the cerebral symptoms are apparently secondary to the vasomotor changes. The ætiology of manic-depressive insanity is obscure, and the possibility of periodic vascular changes cannot be lost sight of. Ritti was strongly of this opinion. He thought it allowable to surmise that a similar condition might be taking place in the brain, that there is spasm of the cerebral capillaries, that the depression may only be the result of cerebral anæmia consecutive to this spasmodic contraction, and that finally the mania is due to re-establishment of the cerebral circulation, which in the phase of reaction may even be exaggerated (59). This was the opinion of Luys, who, speaking of this form of insanity, said that the phenomena

of alternating depression and excitement succeeded one another by imperceptible degrees; this is brought about by "la fatalité des lois de la circulation capillaire." According to him, excitement and despression are only "des variations dynamiques apparentes de l'état d'ischémie ou d'hyperhémie successives par lesquelles passe la trame nerveuse intéressée" (60). It is probable, however, that the explanation is not quite so simple as this, and other additional factors will doubtless be found to underlie these changes. Nevertheless, the mental symptoms which have been observed in association with Raynaud's disease may eventually help to elucidate the subject of the causation of mental disorder. (*)

In other cases the symptoms of Raynaud's disease have been subsequent to long-continued mental disorder. Edgerley remarks, "While in certain cases disorder of the circulatory system is a cause of insanity, much more often mental disorder produces circulatory disorder" (61). It seems probable from a survey of certain of the cases already mentioned that the gradual spread of disorder in the cerebral cells gradually involved those areas of the nervous system which preside over the vasomotor and other mechanisms. Cases of general paralysis of the insane frequently provide a dramatic illustration of the gradual spread from one area to another of the nervous system, and one may readily agree with Urquhart when he remarks of the cases described by him that they may be "correlated with cases of general paralysis where intractable bedsores occur in similar symmetrical disposition." It is not possible, however, to come to any decision on the matter at the present time. The mechanism of cerebral processes has yet to so great an extent to be discovered that the relative value of various factors, physiological or pathological, in bringing about disorder in the human economy cannot be decided. We do know that gross interference with the cerebral circulation can bring about rapid changes in brain function. Pressure on the common carotid arteries, such as is practised by Japanese wrestlers, speedily produces unconsciousness, and Lauder Brunton gives an example of how the same result used to be brought about before the introduction of chloroform as an anæsthetic by means of raising a person rapidly from the recumbent to the standing position (62). In these cases there is produced almost instantaneously the condition to which all insanity tends—abolition of cerebral func-

tion. If in such a condition as Raynaud's disease there is a more localised interference with cerebral circulation, it is legitimate to infer that function may be inhibited *pari passu* with the vascular involvement. A further inference would be that cerebral disorder involving those areas whose function is more specifically described as mental, may arise from the vaso-motor changes. On the other hand, it is necessary to remember that the cerebral and the vascular changes may be dependent on other factors such as a toxæmia or a deficiency in glandular secretions. Nothing but a patient study of all the factors involved is likely to lead to that stage at which it will be allowable to pass from hypothesis to explanation ; it must suffice us for the most part to endeavour to gather the materials wherewith others shall build.

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- (62) Brunton.—*The Action of Medicines*, p. 172.

(¹) Read at the Spring Meeting of the South-Western Division, April, 1916, and awarded a Divisional prize.—(²) Hippocrates, describing the effects of what is described as epidemic erysipelas, notes that “in many cases both forearm and arm dropped off” (*Epidemics*, Bk. iii). Thucydides, in his description of the plague at Athens, says: “For the mischief, being first seated in the head, spread over the whole body, and if one survived the most formidable symptoms, an attack in the extremities manifested itself; for it was determined to the genital organs and to the hands and feet, and many escaped with losing them, and some with the loss of their eyes” (ii, 49). Lucretius, following Thucydides, describes those who were afflicted with the plague in the following terms: “The powers of the whole mind and the whole body grew languid, as if on the very threshold of death . . . the mind was distracted with anguish and dread; the brow was gloomy; the look wild and fierce; the ears disturbed and filled with noises.” He tells us how some of the sufferers lost their hands and feet, the eyes, and the genital organs. “Upon some, too, came forgetfulness of all things, so that they knew not even themselves” (Bk. vi, 1159 *et seq.*).—(³) Vulpian records a case in which there were symptoms

apparently of an hysterical nature. Discussing the nervous symptoms he says that he does not consider them to be hysterical, but due rather to constriction of the vessels in the heart, the brain, and the medulla. "L'affaissement général, l'obnubilation de la vue, les vertiges, l'impossibilité de parler, etc., s'expliquent par un trouble cérébral" (*Gazette des Hôpitaux*, 1884, vol. lvii, pp. 65-66). Paget noted a case where, following cold bathing, there were local syncope and subsequently flushing and heat. Commenting on the probable condition of parts which are the seat of pain or other morbid sensations, in cases of spinal irritation or so-called hysteria, he remarks: "When such parts are out of sight, we are apt to think of them as changed in nothing but their nerve-relations. They are spoken of as only functionally disturbed, this implying that if we could see them they would appear in a perfectly normal state. It is more probable that their vasomotor, as well as their cerebro-spinal, nervous systems are, as in this case, affected; and that through the vasomotor influence they are in some cases anæmic and in some hyperæmic, or in both of these conditions at different times" (Sir J. Paget, *St. Bartholomew's Hospital Reports*, vol. vii, pp. 67-69).—(4) Targowla hazards the opinion that the melancholia and the local asphyxia in the case described by him may be due to the same cause—vasomotor disorder. "Lorsque ce trouble survient dans la circulation encéphalique, il se manifeste par un accès de lypémanie; le même trouble, localisé au extrémités, produit l'asphyxie locale intermittente dont souffre le malade" (*Annales Médico-Psychologiques*, 1892, vol. xv, p. 403).

On Shame. By JAMES RAE, M.A., M.D.

HERE we shall consider the effect of shame; then try to discover why we feel it at certain times, and whether it can be represented as the development of any other emotion.

I.

In the first place we must establish the physical signs and accompaniments of shame: The attitude changes slightly; there is a movement of withdrawal, a shrinking from notice. The eyes are averted or downcast, and the head droops. The face flushes, and the dilatation of the vessels may extend over the chest or even further; the pulse-rate is quickened. A tingling of the skin is next perceived as the vessels contract and the face pales. At the same time there is—though perhaps only momentarily—a confusion of thought.

Here is a physiological state. The vasomotor centre is actuated by the emotion, and the fibres must therefore have a connection with the frontal lobe. We know that the vasomotor centre lies in the grey matter of the floor of the fourth ventricle, and the fibres are believed to pass down the lateral tracts. The vasomotor fibres to the face are mixed up with the fibres of the seventh and ninth cranial nerves. It is, however,

the depressor fibres that are concerned with flushing, and their exact course is uncertain.

There is evidently a disturbance of the higher control, and it is interesting to recall the homologous phenomenon of the total absence of shame in dreams, though its presence might be expected as an accompaniment of social progress. However abruptly a person wakes out of a dream of crime or indecency no shame is felt, even if the course of the dream be deliberately retraced.

Shame may arise from personal modesty, from fear, from appearing at a disadvantage, from hearing of or seeing some untoward behaviour in others, without there being any association with the shamed person.

II.

The shame from infringement of personal modesty is frequently seen in the operating theatre in women, but the discussion of this may be postponed for the present. The same variety is sometimes seen in highly-strung boys, who will refuse to learn swimming because of the necessary exposure of their bodies. A most remarkable instance of regard for personal modesty is the historical one of Philip II of Spain. This King gave stringent orders that after his death the persons who tended his corpse were to cover his private parts with a linen cloth, having their faces veiled the while, under penalty of execution. In both instances the feeling appears to be due to a fear of ridicule of personal appearance or detraction. There are a few cases—not to be too readily believed—of men inordinately vain of their beauty having recourse to a thick veil after receiving facial injuries. Was the Man in the Iron Mask the victim of disfigurement? To exhibit the extreme of grief the Greek artist painted a curtain to conceal the face as if from shame at revealing emotion. Again, we have the sixteenth century ruff and the wide skirt introduced to hide deformities of King's favourites, while the yellow ruff went out of fashion because a woman poisoner in the first years of the seventeenth century wore one at her execution. This, however, belongs more properly to shame at untoward behaviour in others.

To return now to the shame felt by women about to be operated upon: this is noticeably the case with the hospital patient. If her chest is uncovered for the anæsthetist her arms

are at once crossed over it; again, on coming round from the anæsthetic, if her dress is not adjusted she will invariably repeat the gesture. With women not of the hospital class this does not hold true, and the explanation is undoubtedly to be found in their custom of exposing shoulders and arms in evening dress. Apparently the shame that a young girl might be expected to feel at appearing at her first "grown-up" dance in a costume so different from what she has previously worn is entirely overcome by her readily understood excitement.

Some may recollect the two-century old story of the young Spanish princess who was escorted to France to be married. On her way the mayor of a small town through which she passed prayed that the community might present her with the silk stockings the town produced. He received the shocked reply: "Fellow, the Princesses of Spain have *no legs!*" A curious survival of this delicacy about women's possession of lower extremities is the feminine trick of pushing the skirt down a trifle when a woman is sitting, and this is still practised even in these days of skirts which just cover the knee. Women show no shame in bathing before a crowded beach, and indeed I am told by a friend that during the hot summer of 1913, women walked about the piers of south-coast towns with a "university" swimming suit and slippers as their sole covering. It is in fact noticeable that the persons who most quickly cover themselves with a wrap after leaving the water are males.

It is significant that for four hundred years women have been in the habit of exposing in the most liberal way the upper part of the thorax. The only exceptions to this are the period of about thirty years in the seventeenth century ended by the Restoration excesses, and that of less than a decade towards the end of the eighteenth century which was followed (in France) by the scandalous caricatures of classical attire, and the Empire and early Victorian fashions.

As this is not an essay on costume we had better leave this part of the subject. What has been said is intended to show that the most outrageous lack of peripheral covering is placidly accepted by a woman if the fashions of dress so decree, and that in women personal modesty is but a matter of convention. Anyone who wishes for further details has only to refer to "Studies in Psychology of Sex" by Havelock Ellis, Part II, pp. 7-13.

III.

The preceding section has been simple, but in considering fear as a cause of shame we come to a matter of great complexity. Fear is produced by

- (a) Physical danger.
- (b) Personal loss or inconvenience.
- (c) Possible punishment.
- (d) Wrong conduct (moral fear).
- (e) Anxiety for others.

These causes of fear are, if not faultlessly arranged, at least comprehensive. Which of them can we delete with reference to shame? The last is cancelled at once, since anxiety for the welfare of others is a virtue. It is true that shame may be due to virtue, but this we shall consider at a later stage of our analysis. As for the others, it is not they but the fear of them that causes shame: yet even this statement has to be further modified.

Fear may be so intense as to abolish all shame (in the person afraid) at the display of it. If the individual's higher centres are sufficiently developed, he will be enabled to confront the danger though still afraid, and even though his fear be such as to leave no room for shame, he may nevertheless remain fully alert and capable. Cowardice is nothing but physiological weakness of control, and if a man is incapacitated from performing his task by sole reason of his fear of physical danger he does not feel shame until the fear and its cause have passed away.

Fear of personal loss or inconvenience is not strong enough to produce shame unless the fear has to do with some unworthy object, in which case the consciousness of the unworthiness may give rise to shame. One may be "afraid" of missing a train, for example, if the feeling be genuine fear and not merely discomfort, but the actual missing it does not cause shame unless it is due to laziness or to carelessness. In the latter case it is placed more correctly in the group of fear of wrong action and possible punishment.

The mere contemplation of a wrong action, although the intent of committing it be entirely absent, is a cause of shame. It by no means requires such an action to be carried out before repentance is experienced. An unexpressed distrust of some-

one which is later found to be baseless, an entirely mental elaboration of a scheme of revenge, a "sight of means to do ill deeds," are all capable of bringing about a rush of self-contempt ending in shame, though it, no more than the origin of it, may be disclosed. (The true origin is the realisation that the particular thought is a wrong one; which implies, first, the evil thought; second, a criticism of it; third, a comparison between it and an abstract moral standard; and fourth, the condemnation. Some would add that there must be a thinker before there can be a thought, but the problem of whether this should not rather be expressed as "the consciousness of thought implies a thinker" would lead us far into the realms of philosophy.) The shame of possible punishment powerfully reinforces the influence of the moral standard. "Because right is right to follow right" is a motive less potent now than it was in the days of the Greek sophists, and the modern man is more often deterred from wrong-doing by fear of its consequences than urged to virtue for its own sake.

When a wrong action is committed, it is condemned by an abstract moral standard, which depends on tradition both religious and family, modified by personal habits. The common practice of swearing is not acquired until the early sense of shame at using profanity is lost. Leigh Hunt's essay describing his childish self-torture at being "the boy who said 'damn'" is a good illustration of this. There are many people who swear almost without realising they do so, and yet avoid the use of certain expressions, while the Oriental references to the probable ancestry of the hearer are repugnant to the European mind. Similarly, a man who after leading a normal life transgresses the law of the land, may "feel his position acutely," to use the routine phrase of sensational journalism, either in the dock or when released from prison, but if several times convicted loses all sense of degradation.

IV.

This leads us directly to the next cause of shame, namely, appearing at a disadvantage. As civilisation advances certain conventions are established, and any infringement of these causes shame. A man tells us of his father's death, and we condole with him on the loss; if truthful we might feel bound to declare that "such a disreputable and drunken old scoundrel

is better off the earth," but we should be ashamed to do so. We offer amiable congratulations on a badly executed song or sketch, and feel no shame at our lying praise of it. These minor hypocrisies seem quite inadequate to arouse a sense of shame. The person whom the action most nearly concerns feels no shame at it, and it is the truthful critic who would be shamed.

Let us return again to the example of the exposed law-breaker—be he embezzler, forger, cheat, or liar. It is true that he may feel shame at the planning of his crime, but it is a self-contempt not identical with his emotion when he is publicly stigmatised as dishonest. In this case he thinks of the loss of trust, of position, of friends, and of money, and when his misdeeds come to light his first impulse is to save himself. The disgrace to his business partners and to his family is beyond his thoughts, which are entirely devoted to his own loss of public repute.

But we are not driven to such crass examples to illustrate the shame felt on appearing at a disadvantage; there are many minor ones we may cite. Tripping on a rug at the entrance to a crowded room, upsetting a glass, a thoughtless remark which at the time or later one finds has deeply hurt the feelings of one's hearer, all produce shame, and the mere recollection of them revives the feeling for some time afterwards. Of a similar nature is the shame experienced at appearing in inappropriate dress at some public function, or wearing at an unusual time some costume quite suitable in itself for another occasion.

In an earlier paragraph the statement was made that virtue may be a cause of shame. It is quite possible to know one is in the right and yet feel shame. One may be disgusted by an obscene jest, by an account of astute commercial dishonesty, and be shamed because one is the only member of the company who does not admire it. This may be due to one's own wish that one had more worldly-wisdom; there is no surer way to flatter the boy of nineteen than by treating him as one acquainted with all forms of evil. The feeling of shame in such circumstances may be a genuine disgust at whatever has called it forth, but there is more often that perception of appearing at a disadvantage. The blush of conscious innocence may in truth be due to an apprehension of ridicule at ingenuousness which is discordant. Again, one may do a generous action or take some trouble to help another, and at the same time be

most anxious that one's kindness should not be known. Why shame should be felt for this reason is difficult to explain except on the ground that bringing oneself into prominence is in a way appearing at a disadvantage.

V.

Next we have to consider shame caused by untoward behaviour in others. We have already mentioned an example in the yellow ruff. Another instance is the avoidance of the name Stephen by the English Royal Family. The horrible wickedness of the one King of that name has banished it from the families of his successors save as a subsidiary. (It must be stated, however, that the significance of this avoidance is largely diminished by the many changes in dynasty.) As other instances of what may be termed national shame are the effects produced by the news of the fall of Khartoum, and the "Black Week" of the South African War.

Members of a class may be shamed by an opportunist abandonment of principle by a large body of the class. Then, too, there is the family shame of owning a disreputable member, or facing the scandal which is attached to suicide or to marital infidelity. Of a similar nature is the shame felt at hearing a relative make a tactless or brutal remark, just as though the hearer himself were guilty of it. "Visiting the sins of the fathers upon the children" might be interpreted as fixing the period required for the shame of a family disgrace to pass away. To this we must add the shame felt by onlookers at the display of fear by another. All this appears once more to be due to a sense of depreciation in value of a part which must affect the whole, and so cause the whole to appear at a disadvantage.

VI.

Such an analysis of shame requires for completion a distinction between shame and certain other emotions. We have already mentioned the physical signs of shame: blushing and shrinking may be due also to diffidence or to shyness; blushing to anger, but in this case there is no shrinking, and the blush is less extensive. Shame, as we have attempted to show, depends on the opinion of others. Both diffidence and shyness are produced by a sense of unworthiness or inferiority in the individual, quite irrespective of the estimate of others.

This statement that shame depends on the opinion of others is by no means contradicted by the possibility of the individual feeling shame while alone, for there is always the reference to a standard other than his own. But the shy or diffident person notoriously feels sure of himself in solitude. In imaginary rehearsals of scenes through which he has passed—actually to his own confusion—he always carries himself with easy self-possession, and *l'esprit d'escalier* is famed for its brilliancy. He can make plans for his confident behaviour, but the presence of others disconcerts him totally. Shame, it may be repeated, is experienced quite irrelevantly to the presence of other people.

Where all were afraid, or immodest, or brutal, or obscene, or dishonest, or disgraced, none would feel shame. From what has been expressed in the foregoing paragraphs it will be seen that shame is invariably set up by an *incongruity* between the shamed person and his associates. If the particular circumstances involved no loss of position—moral or material—it is doubtful whether shame would ever be felt. And as this dependence on the opinion of others is the important factor, it does not seem too far-fetched to define shame as “the social expression of self-interest.”

Unfitness to Plead in Criminal Trials. By M. HAMBLIN SMITH, M.A., M.D., Medical Officer, H.M. Prison, Portland.

THE subject of this paper is the criteria of an accused person's fitness to plead to an indictment charging him with some criminal offence. It is a consideration of the questions which are involved in the special verdict of “insane on arraignment.” We shall see, however, that in this connection the word “insane” is used in an extended sense.

There are four stages in the process of any criminal case, tried on indictment, at which the question of the accused person's mental condition may have to be reviewed: (1) Before the trial. (2) Before he pleads to the indictment at the trial. (3) During the progress of the trial. (4) After the trial. The questions raised at the second of these stages are those

which mainly concern us here ; although, for statistical purposes, we must consider the cases found insane before trial. We shall see that these questions are essentially practical, and that they differ materially from the fascinating metaphysical question of a person's "responsibility according to law."

Probably the very controversial character of the points involved in the verdict of "guilty but insane" accounts, to some extent, for the comparatively small attention which has been given to the verdict of "insane on arraignment." But the latter verdict is worthy of attention, and is by no means infrequent.

The author trusts that he may be pardoned for giving a short historical introduction. He thinks that this is not merely of antiquarian interest, but that it really serves to throw light on the question of pleading at trials.

In former times persons accused of felony were not considered to be tried properly unless they consented to their trial by "pleading and putting themselves on the country." The indictment having been read, the prisoner was asked (as he is at the present day), "How say you ; guilty or non-guilty?" If he replied, "Non-guilty," he was then asked, "How will you be tried?" He had to reply, "By God and my country." If he refused to answer these questions he was said to "stand mute"; and a jury was sworn (as a jury may be sworn to-day) to try whether he was "mute of malice" or "mute by the visitation of God." If found "mute of malice," and accused of treason or misdemeanour, he was taken to have pleaded guilty, and was dealt with accordingly. But if accused of felony the trial could not proceed in the absence of a plea, and the prisoner was condemned to be pressed (*peine forte et dure*) until he pleaded or died. The usual object of a refusal to plead was to preserve the accused man's property for his family by avoiding the forfeiture to the Crown which followed on a conviction. As there could be no trial, there was no conviction, and hence no forfeiture of goods. In 1659 a Major Strangways was pressed to death for refusal to plead. The last case of pressing was in 1726, when a man accused of murder was pressed for two hours, and then pleaded not guilty ; he was tried, convicted, and hanged. The law remained as stated above until 1772, when standing mute in cases of felony was made equivalent to a conviction. In 1827 it was

enacted that in such cases a plea of not guilty should be entered, and the trial be proceeded with in the usual way (1). A part of old Newgate Prison was known as the "press-yard," and the name survived until the destruction of the building.

The question of "mute of malice" need not detain us long. At the present day such an event is not likely to occur, save in the case of a prisoner who is attempting to feign insanity. A curious case may be mentioned, that of a man named Harris who was tried for murder in 1897. After the murder he had attempted to cut his own throat, and had inflicted such injuries on his vocal cords that he was unable to speak. His trial was postponed to the next sessions, when presumably his vocal condition had improved, for he was then tried and sentenced to death. It might, perhaps, be debated whether this man was mute "of malice."

Coming to muteness "by the visitation of God," this may occur in deaf-mutes, or in cases of insanity or mental defect. As the question of the cause of the muteness is only one of the questions which may be raised on arraignment, it will be convenient to return to muteness later.

Having found that the prisoner is "mute by the visitation of God," the jury may next be sworn to try whether the prisoner is "fit to plead." And, further, the jury may again be sworn to try whether he is "sane or not." It seems that, strictly speaking, the jury should be separately sworn to try each of these three issues, in the order as stated above. This rule, however, is not always followed, and the judge may put all or any of these three issues to the jury.

The prisoner may not be mute, and yet may be unfit to plead by reason of mental disease or defect. It is a general rule of English law that a man must be present at his trial. This is certainly the case in trials for felony, and, except under very exceptional circumstances, in trials for misdemeanour also. The prisoner has a right to be present in body, though he may forfeit this right by his own misconduct: judges have ordered the removal of a prisoner who was wilfully and persistently noisy. And he has also a right to be "present in mind." In other words, he must be sane at the time of his trial; or, at any rate, he must be able to understand the proceedings. This right appears to be part of the English common law. Hale says: "If a man in his sound memory commits a capital offence, and

before arraignment becomes mad, he ought not to be arraigned, because he cannot advisedly plead to the indictment" (2). And Blackstone says: "If a man before arraignment for a capital offence becomes mad, he ought not to be arraigned, because he is not able to plead to the indictment with that advice and caution that he ought" (3).

It will, of course, be remembered that in the days of Hale and Blackstone capital offences were far more numerous than they are now. The Statute 33 Hen. VIII, c. 20, made treason a special exception to this general rule, and provided that if, after committing an act of treason, the prisoner became insane, he was still to be tried, and if found guilty was to be dealt with. But this remarkable statute was repealed by 1 and 2 Phil. and Mary, c. 10. It appears from old authorities that the question of the prisoner's sanity at the time of trial might be inquired into by the jury impanelled to try the indictment (4). But the law was finally settled by "The Criminal Lunatics Act," 1800. This statute was passed after the trial of Hadfield (a man who had fired a pistol at George III), and it provided—"that if any person indicted for any offence shall be insane, and shall on arraignment be found so to be, by a jury lawfully impanelled for that purpose, so that such person cannot be tried upon such indictment, it shall be lawful for the Court to direct such finding to be recorded, and thereupon to order such person to be kept in strict custody until His Majesty's pleasure shall be known." And this remains the law to-day.

So we have to consider what is the degree, and what the kind of mental disease or defect which justifies this verdict of "insane on arraignment." Pleading to the indictment is not merely a matter of saying "guilty" or "not guilty." Much more is involved than this. The essential point is the state of the prisoner's mind at the time of arraignment. And, according to Russell, the test is "whether the prisoner is of sufficient intellect to comprehend the course of the proceedings on the trial so as to make a proper defence" (5).

The word "proper" is clearly the difficulty. Baron Alderson in the case of *R. v. Pritchard* directed "that the jury must be satisfied that the prisoner was of sufficient intellect to comprehend the course of the proceedings on the trial so as to make a proper defence, to challenge a juror to whom he might object, and to understand the details of the evidence." The author

has heard it laid down in court that the prisoner must be able (if defended by counsel) to give proper instructions for his defence, or (if undefended) to cross-examine the witnesses for the prosecution. Presumably *all* the criteria mentioned by Baron Alderson must be satisfied in order to establish the prisoner's fitness to plead.

If these rules were applied strictly and literally a very large number of prisoners would have to be declared unfit to plead. For instance, take the right to object to (technically, to "challenge") a juror. How many prisoners are even aware of their right in this respect? True it is that the Clerk of the Court repeats a formula which informs the prisoner of his right. But one may be permitted to wonder how many prisoners find this information intelligible. And, again, it is a question as to how many prisoners are capable of making what may reasonably be called a "proper defence," or of cross-examining witnesses, or (if defended) of giving proper instructions for their defence. But it is clear that mere ignorance, or lack of education, or ordinary stupidity, will not be enough to justify a verdict of unfitness to plead. And cases of this kind, if undefended, are safe in the hands of the presiding judge, from whom they receive all possible and proper assistance.

What then is necessary in order that a prisoner may properly be allowed to plead? He must clearly understand that he is on his trial. He must understand for what offence he is being tried. And he must be able to appreciate the difference between a plea of "guilty" and of "not guilty" (see *R. v. Wheeler*, 1852). If there is any uncertainty on these points he is unfit to plead. Next, he must have a reasonably clear idea of the proceedings against him at the trial, and of their meaning and effect. It must not, of course, be expected, or claimed, that an ignorant man of the labouring class should have the same ability to make a defence which would be possessed by a highly educated man. But it may perhaps be insisted upon that he should not be markedly below (either by reason of mental defect or disease) the average mental capacity of a man of his age, education, station in life, etc. No demur will be taken to the position that any condition of acute insanity—mania, melancholia, dementia præcox with stupor, acute confusional insanity, etc.—would justify a verdict of "insane on arraignment." The real difficulty arises in cases of undeveloped insanity, *e.g.*, early

general paralysis or commencing senile dementia, and also in such states as paranoia and some cases of epilepsy.

What, then, are the points which we must consider? Memory is an important matter. If the prisoner's memory for recent events is markedly affected, so that he is unable to remember the events at the time of the alleged crime, then surely it is impossible for him to make a proper defence to the charge. Indeed, in some cases of senile dementia the word "trial" would be a misnomer. Difficulty, in this direction, may arise in early cases of general paralysis; and an awkward problem is presented in cases where an offence has been committed during an epileptic "equivalent," or in a post-epileptic condition. As a general rule, such a patient will have no recollection of events which occurred when he was in this state. And so it might be urged that he was, to a large extent, incapacitated from defending himself against the charge. The author is of opinion that the prisoner should plead, evidence of the epilepsy being placed before the court at the proper time. Such a patient might well be apparently normal in the intervals between his epileptic attacks. But in a case of *epileptic insanity* the situation is altogether different, for here the memory, perception, attention, and judgment may be so affected that the prisoner may be unfit to plead (*R. v. Henley*, 1912). Memory is not, of course, the only point to be considered. If his perception, attention, reasoning power, and the other elements which make up intelligence, are markedly impaired, then it may be that the prisoner should be regarded as unfit to plead, having regard to the conditions of fitness to plead which have already been laid down. And, besides intelligence, the emotional reaction and the will power must be taken into account.

The existence of delusions would not be, in itself, a sufficient ground on which to base inability to plead. Delusions are, of course, excellent facts on which to base a demonstration of insanity, and it is impossible to say what part of a man's conduct is unaffected by an insane delusion. Yet in cases of paranoia, where delusions (*e.g.*, of persecution) may be the prominent feature, the patient may be capable of defending himself with much acumen. It cannot be too clearly pointed out that a man may be insane, and may be found "guilty but insane" at his trial, and yet may have been rightly considered fit to plead.

A person may have been insane at the time of the crime, and may be recovering at the time of trial. Such an event is very likely in cases of puerperal insanity with destruction of the child. The prisoner should plead, and a verdict of "guilty but insane" will probably be returned. The mental questions on arraignment are solely concerned with the state of mind at the time of arraignment.

A prisoner may be aware of the nature of the crime with which he is charged, may have given himself up for it, and may know quite well that he is being tried, but yet may be unable by reason of his mental state to "take a rational part in his trial, to understand the evidence against him, and to do his best to defend himself against the charge" (Baron Pollock, in *R. v. Mills*, 1884).

So far we have considered what may be called cases of "certifiable insanity." Surely the principles laid down might include many cases of "mental deficiency." An "idiot" or an "imbecile" would naturally be found "insane on arraignment." And it seems that the rule might apply in many cases of "feeble-mindedness." The "Mental Deficiency Act," 1913, defines such cases as persons "who by reason of mental defect, existing from birth or from an early age, require care, supervision, and control, for their own protection or that of others." Apply the criteria of fitness to plead to such persons. And apart from what might be called "statutory feeble-mindedness," in which a congenital or early origin must be proved, there are many cases of "senile" and of "alcoholic" feeble-mindedness. In these, as in the congenital cases, the intelligence, the emotional reaction, and the will-power are often most markedly affected. Such persons may often be quite unfit to plead. And the author would suggest that the criteria of fitness to plead might often be applied in such cases, and the power of detention under the "Criminal Lunatics Act," 1800, might often be used. The congenital or early origin of the case need not be proved; the question of fitness to plead is all that need be considered. If it is objected that it is too great an extension of terms to call such cases "criminal lunatics," the answer is that it is not so great an extension as we shall see later is made in some cases of deaf-mutes.

So we have seen that no general rule can be laid down as to the degree or character of mental disease or defect which

renders a person unfit to plead, any more than an absolute rule can be made as to the degree of mental derangement which renders a person "irresponsible for his criminal actions." Each case must be considered on its merits. All the circumstances must be weighed with care. And the possibility of feigning or exaggerating symptoms must not be ignored. All this will require close and continuous observation of the prisoner, and often careful inquiry into his history and into the circumstances of the crime. The process may be of a very intricate character, and may involve repeated and prolonged interviews with the prisoner. The author knows that he is touching on difficult and highly controversial matter. But he ventures to think that in many cases inquiry will be futile unless there is discussion of the circumstances of the crime with the prisoner. And, further, he considers that any information, bearing on the guilt of the prisoner, which is obtained in this way, must be regarded as confidential. The author believes, and it is confirmed by his personal experience, that this privilege, though perhaps technically unknown to the law, is practically allowed by courts at the present day. In epileptic, and in other cases, where the question of loss of memory may be of paramount importance, free discussion of the circumstances of the crime must be an essential feature of the examination. All this has its bearing on the question of full inquiry into the mental state of every person before his trial. The author holds strong views on this subject, but it is not a matter which can be entered into here.

Many cases may be doubtful. And it must be remembered that, as Dr. Nicolson says, it is desirable that a prisoner, although insane, should be allowed to plead if he is at all capable of doing so (6). It is, for many reasons, well that whenever possible a verdict should be obtained on the merits of the case. It may happen that the prisoner is proved innocent. If he is insane, there are still ways of dealing with him.

Now let us return to deaf-mutes. There may be the possibility of communicating with such a case either by writing or by means of the sign language. And the prisoner is then in the same position as a foreigner, ignorant of English, who has to be communicated with through an interpreter. His sanity or insanity would still have to be considered. But a deaf-mute who is illiterate and is ignorant of the sign language cannot be

communicated with at all. Such a person is clearly unfit to plead, and is properly so found. And in the case of *R. v. Emery*, 1909, it was held that such a finding is equivalent to a verdict of "insane on arraignment." Exactly similar cases were *R. v. Leese*, 1914, and *R. v. King*, 1908. So, as suggested at the beginning of this paper, the word "insane" has a somewhat extended meaning. With deaf-mutes the only thing to be done is to endeavour to prove whether there is any means of communicating with them. This may involve a difficult decision. And this difficulty may be much increased when the deafness, although great, is not absolute, and the inability to speak is not complete (*R. v. Birch*, 1914).

The possible combinations of circumstances, and the verdicts, may be put in a tabular form :

(I) Prisoner may be "mute by the visitation of God."

(i) Sane and can be communicated with—Fit to plead.

(ii) Presumably sane, but cannot be communicated with—Unfit to plead.

(iii) Insane (or mentally defective), but can be communicated with—Unfit to plead.

(II) Prisoner not mute, but insane (or mentally defective) :

(i) Able to make a proper defence—Fit to plead.

(ii) Unable to make a proper defence—Unfit to plead.

How do such cases usually occur in practice? The author, of course, writes from the position of a prison medical officer, upon whom the duty of reporting to the court in all doubtful mental cases is laid. The jury may form their opinion of the prisoner's sanity or insanity from his manner and appearance (7). But practically there must be some suggestion, however informal, of unfitness to plead; and this may come from the prosecution, from the defence, or from some other source. And in most cases the first suggestion comes from the prisoner's side, in cases which are defended by counsel (an insane man himself is not likely to put forward a plea of insanity). This explains the fact that pleas of insanity are most common in capital and other serious cases. Counsel are unwilling to risk an indefinite detention for a client, in consequence of an offence which would normally be punished by a short period of imprisonment. The modern tendency towards shorter sentences will increase this reluctance.

Simple uncontroverted cases will give rise to no difficulty.

But the case may be contested by the prosecution (as in *R. v. Taylor*, 1888), or by the prisoner (as in *R. v. Mauerberger*, 1887). Counsel may wish for a verdict on the facts. In this event the medical witness will be cross-examined. There is some difference of opinion as to the manner in which the medical evidence should be given. Facts must, of course, be the basis of any opinion which is given. Some judges allow, and even ask, the medical witness (after he has described the observed facts) to express his opinion as to the prisoner's ability to understand the proceedings, to make a defence, etc. Other judges appear to have ruled that these latter questions are for the jury alone, and that the medical witness must confine himself strictly to a description of facts. This latter view, if pushed to the limit, seems unreasonable. But perhaps the best plan is to describe the case fully and give a reasoned opinion in the written report before trial, and in court to answer such questions as may be asked.

A defended prisoner may persist in pleading in spite of his counsel's admission that he is unfit to plead. This occurred in the case of *R. v. Douglas*, 1885. He was finally allowed to plead, and was found guilty but insane.

A peculiar condition of affairs occurs when an insane man, having been declared fit to plead, persists in pleading guilty. Further inquiry into his mental state by the court appears to be barred, and he must be sentenced and then dealt with as an insane prisoner. Such a case occurred in *R. v. Swatman*, 1876, and also in a case in the author's own experience in 1913.

There is no appeal against the finding of a jury that a prisoner is fit to plead. Of course it is possible to appeal that a sentence may be quashed on the grounds of insanity (7).

All persons, deaf-mutes and others, who are ordered to be detained as insane on arraignment are treated and classed as "criminal lunatics." This seems a peculiar title, for two reasons. Firstly, such persons have never been convicted of the crime charged against them. Under the "Criminal Lunatics Act," 1884, if a person detained as "insane on arraignment" becomes sane, the Secretary of State *may* order him to be remitted to prison to be dealt with according to law. And, presumably, a deaf-mute, detained because it was impossible to communicate with him, might also be remitted to prison for trial, if, by means of education, communication became possible. And secondly, it

is doubtful whether even persons found "guilty but insane" at their trial can properly be termed *criminal* lunatics. For the judgment of the House of Lords in *R. v. Felstead* (1914) was that a verdict of "guilty but insane" does not amount to a conviction.

Taking a number of years before the war, the average yearly number of verdicts of insane on arraignment was 24 male and 6 female cases. This amounted to 3 per 1,000 males and 9 per 1,000 females of cases convicted on indictment. (Strictly the figures should be reckoned on the numbers tried on indictment, but the author simply wanted to illustrate the relative frequency of the verdict in men and women.) To these numbers should be added such cases as are certified insane while waiting trial (38 males and 30 females), who were presumably so insane that any attempt at a trial would have been impossible. And there must also be added an uncertain number who were certified insane on remand and at the police court, some of whom would have been indicted had their cases being allowed to proceed. During the same period a yearly average of 28 men and 12 women were found "guilty but insane." From the opening of Broadmoor Criminal Lunatic Asylum to the end of the year 1912 there were received into that institution 721 cases certified while awaiting trial or found insane on arraignment, of which 482 (67 *per cent.*) were charged with murder or attempted murder, and 1,282 cases acquitted on the grounds of insanity, found guilty but insane, or reprieved on the grounds of insanity, of which 1,115 (87 *per cent.*) were for murder or attempted murder. (These numbers support the suggestion, made earlier in this paper, that the plea of insanity is far more frequent in murder trials than in any other class of crime.) And on December 31st, 1912, there were in Broadmoor 195 men and 74 women certified while waiting trial or found insane on arraignment; and 346 men and 145 women acquitted on grounds of insanity, found guilty but insane, or reprieved on grounds of insanity. The marked preponderance of women will be noted, having regard to the fact that the number of men tried on indictment to the number of women so tried is about 11.5 to 1. The great excess of these cases among women is probably accounted for by the large number of infanticide cases, in which there is a great reluctance to convict (a conviction necessarily implying a sentence which everyone knows will not be carried out).

CONCLUSIONS.

(I) The term "insane on arraignment" is used in a somewhat extended sense. And it would be well if some alteration in the legal phraseology were made (*e.g.*, to substitute the words "unfit to plead").

(II) No absolute standard of insanity or mental defect can be laid down as unfitting a man to plead: Each case must be considered on its merits.

(III) That while recognizing that the presumption in all cases should be that the prisoner is fit to plead, there is some reason to think that in many cases it would have been well had the question of the prisoner's mental state been considered at an earlier stage.

The author is only too well aware of the defects of this paper. He has two excuses for publishing it—the comparatively small attention which seems to have been given to this verdict, and the fact that he was asked to write it by an eminent alienist with whom he was associated in a case several years ago. He has tried to make the legal side of the paper as accurate as possible.

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Part II.—Reviews.

Pragmatism and the Problem of the Idea. By the Rev. JOHN T. DRISCOLL, S.T.L. Longmans: New York and London. 1915. Crown 8vo. Pp. xxvii, 274. Imprimatur of Remigius Lafort, S.T.D., Librorum Censor.

A book which, like this, is avowedly written to support a foregone conclusion naturally arouses prejudice against it. That a Roman Catholic priest should condemn any philosophical doctrine that is not to be found in St. Thomas Aquinas is so much a matter of course that it is natural to presuppose his condemnation of pragmatism; and his Preface admits and proclaims that the book is the result of studies carried on for some years in an endeavour to show that pragmatism is erroneous. He embarked on the study of pragmatism in the same spirit as a predecessor of the same faith embarked on the study of parallax. This open-minded critic asked Galileo the meaning of parallax, so that he might write against it, for he had heard that it was inconsistent with the doctrines of Aristotle. So Father Driscoll inquires the meaning of pragmatism so that he may write against it, for he has heard that it is inconsistent with the teaching of Aquinas. It is thus at least that we interpret his Preface. We are not, therefore, led to expect a very accurate account of pragmatism, nor do we expect to find unbiassed criticism of the doctrine so called, and in neither respect does the book surpass our expectation. There is indeed no actual misquotation. Father Driscoll quotes copiously and correctly, but the student who should obtain his notion of pragmatism from this book, as it is intended that Catholic students should, will obtain a notion that is not very clear and that is a good deal distorted. To say that William James and Prof. Bergson teach that the end justifies the means; that they judge means without reference to the principle of right and wrong; that they gauge the truth or goodness of an action by personal success alone; are really shocking distortions of the teaching of these eminent men; and to say that the influence of these two teachers is material and sensual is ludicrous. The doctrine that the end justifies the means has always been identified in the minds of Protestants, and of a good many Roman Catholics also, with the teaching of the Jesuits, so that if William James and Prof. Bergson had taught such an immoral doctrine (they have not) they would have been following the most illustrious authorities in Father Driscoll's own church. Father Driscoll's acquaintance with science may be judged from his assertion (p. 263) that the scientific hypothesis of evolution now rests upon Mendel's law. I have tried to divest myself of the prejudice which, as I have said, a book written to support a foregone conclusion naturally arouses, but I am bound to say that my prejudice was faint indeed in comparison with my postjudice. The book is intended for Roman Catholic students, and for them I daresay it will serve its purpose, but it is not to be commended to anyone who wishes to obtain a true account of pragmatism.

CHAS. A. MERCIER.

Collected Papers on Analytical Psychology. By C. G. JUNG, M.D.
LL.D. Authorised translation edited by Dr. Constance E. Long.
London: Baillière, Tindall & Cox, 1916.

In the author's preface it is explained that this volume contains a selection of articles and pamphlets written at intervals during the past fourteen years. As the papers are arranged in chronological order it is possible to follow the gradual alteration in Jung's views with regard to psychoanalysis.

The differences between the Vienna and the Zürich schools are stated briefly as follows: The Vienna school is mainly concerned with the analysis of the symptoms to find the cause. The Zürich school tries to find out the aim of the disease. To quote from the preface: "For to the Zürich school the symbol is not merely a sign of something repressed and concealed, but is at the same time an attempt to comprehend and to point out the way of the further psychological development of the individual. Thus we add a prospective import to the retrospective value of the symbol."

A volume consisting of selected papers does not lend itself to review unless each paper receives separate attention. There is a considerable amount of repetition which is unavoidable, but which, though as a rule distracting, at other times is helpful, as a point not understood on the first occasion, when repeated in a different way is clear.

The chapter which will especially interest the readers of the Journal is number XIII, entitled "The Content of the Psychoses." In this the author contends that most cases of insanity have psychic, not physical, causes. He deprecates all study of the morphology of the brain, and states that in three-fourths of the brains examined *post-mortem* at Burgholzi nothing abnormal is found. He therefore concludes that the path of psychiatry in the future must be only by way of psychology. Of course, definite organic diseases of the brain, *e.g.*, general paralysis, etc., are excepted. This sweeping assertion is not altogether convincing, especially when it is remembered that the advocates of a toxic causation of insanity could quote exactly the same evidence in support of their theory.

In the same chapter examples of psychoanalytic studies in several insane patients are given, and explained in characteristic manner. These explanations are clever and are possibly the correct ones, but equally possible is it that other interpretations may be nearer the truth. It is impossible to withhold admiration for the amount of work which Jung and his assistants must undertake in the studies of their cases, and the ingenuity expended in arriving at the solution of their problems. Though science must be studied for itself and not for its practical results, still the question will obtrude itself, "Is the patient any better after the psychoanalysis?" So far, in its dealings with the insane, the therapeutic results of this new method are disappointing.

To those who wish to keep abreast of the literature the present volume will be most helpful, especially if their knowledge of German is limited. The translation has been well done, and the book has been carefully edited.

Several of the chapters have a foot-note giving the place and date in

which it originally appeared. This certainly adds to the interest, and should be supplied to all. It was stated a short time ago in a correspondence in the medical journals that no mention had been made of the names of certain people who had acted as translators of several of the chapters. These defects will, no doubt, be rectified when a second edition is called for.

R. H. STERN.

Part III.—Epitome of Current Literature.

1. Psychology and Psychopathology.

The Biological Point of View in Psychology and Psychiatry. (*Psychological Review*, vol. xxiii, March, 1916, pp. 117-128.) Abbott, E. Stanley.

It is necessary to consider psychology and psychiatry from the biological point of view, because only in this way can they be rendered objective, and as free as possible from metaphysical bias and *à priori* theories. By the term biology he connotes the science of living things, and not merely the study of structures and physiological activities. The fundamental differences between non-living and living things are that the latter by internal activities make themselves out of the materials of their environment, and reproduce their kind. The power of adaptation to environment in non-living things is very limited, and there are no self-directive activities. The life of the individual biological unit consists in the continuous adaptation of itself to its environment as well as it can. If it stops reacting by internal activities, it dies. If it does not react as well as it can, it succumbs to external agencies, or does less well than its neighbour. Man may be looked upon as such a biological unit. Many of his internal activities are physiological, but most of those which result in his external behaviour or conduct are psychological. All of his activities are directed to the great end of his best self-adjustment to his whole environment, though lesser or nearer and more concrete ends are usually more immediately prominent to the individual. Reaction is to a large extent unconscious. Psychical activities are links in the chain of internal reactions. Each link is a reaction, effect of preceding links, cause of succeeding ones. Study of causes leads back to factors of the environment, and to anatomical structure and physiological process. Study of effects leads forward to behaviour and to bodily changes and processes. Every psychic event is a reaction. The nervous system is the structure specially adapted for the performance of psychic functions or processes. Mind is the abstract name given to the capacity to react in certain ways, to the organised whole of any individual's psychic reactions, or to the content of any individual's psychic reactions, especially ideational ones. It is a function or set of functions, but through misconception it is often used to indicate some mysterious thing which can act of itself or is opposed to or

contrasted with body, and it is often referred to as having structure. "From a strictly biological point of view it bears the same relation to brain and to the individual that respiration does to lungs and to the individual, or that running does to legs and to the individual. It is the *individual*, not the brain, that thinks or exercises the other psychic activities we call mind, just as it is the individual, not the lungs, that breathes, or the individual that runs, not the legs. But by means of the brain, the lungs, and the legs, the individual thinks, breathes, runs."

We do not think of opposing or contrasting respiration or running with lungs, legs, or body. Neither should we do so with brain or body in the case of mind. Nor is it less absurd to say that mind is brain, and brain is mind.

Some structural knowledge is essential for the proper comprehension of function, whether it be respiration or mind. So intimately are structure and function related that it will doubtless be found eventually that racial, family, and even individual traits are partly dependent on more or less minute structural differences in brain architecture and nerve-cell distribution. Such knowledge is a pre-requisite in psychiatry. The effects of, for instance, toxæmias, fatigue, and brain lesions on mental processes are of recognised importance; while the effects, in particular, of the emotions on bodily activities have been emphasised by Crile, Cannon, and others. In the writer's opinion the bodily condition acts to some extent on the ideational processes and content through the affects, especially in the insane. From the biological point of view the relations between body and mind are in principle almost as simple as those between body and any other function.

Environment as a cause of psychic activity has been too much neglected: it acts upon the unit, which reacts to it. Any given unit will react to the extent of its capacity for reacting, and this is determined by its structure. The chief environmental factors are matter and modes of energy (light, sound, heat, etc.); other living creatures; *relations* of various kinds—genetic, social, business; law or necessity; obligations and rights. Psychology cannot adequately study the mechanism without a knowledge of the nature of the stimulus any more than physiology can adequately study the mechanism of digestion without a knowledge of the composition of foodstuffs.

Every biological unit is not only in an environment, consisting of these factors, but each one is at the centre of its own environment, and is itself part of it. It may be regarded as consisting of a set of concentric circles or spheres, each representing a limited situation, the factors of which act with greater or less force upon the unit at the centre, and to which the unit responds with more or less activity, physical and psychical. The inner circles—the immediate surroundings—are constantly changing, and require constant adjustment on the part of the individual: the remoter ones, as a rule, change less and require, therefore, less adaptation. In psychiatry, for example, it is necessary to study the patient's total reaction to his total environment.

"The biological point of view—that every psychic event is a reaction of an individual—if consistently followed and applied will correct a tendency, prevalent to some extent in most if not all psychologies, very common in James's psychology, and fairly running riot in the writings

of the Freudian school, to personify, as it were, or to make independently acting entities of the psychical functions. Making all due allowance for a proper use of analogies and of abstractions to avoid descriptive phrases and periphrases, and for literary leavening of an otherwise perhaps heavy dough, there yet remains enough of such usage to indicate a haziness of conception on the part of the writers, and to becloud for the reader a subject not too clear at best—not to mention its scientific inexactitude."

The unity of the "ego" is determined by the facts that it is the same organism which reacts at successive times, that each experience is recorded in the same individual (not in any other), and that the organism can recall the content of most of these experiences by subsequent psychical activities. Partial or split personalities may be explained on the hypothesis that the individual cannot recall or make use of large groups or sets of experiences, and can react in more than one way at a time.

In answer to the objection that his view may be considered purely mechanical or fatalistic, the author says that, though the individual *must* react to the environment, there are yet many possibilities of reaction: and he can, even must, choose which of the possibilities to carry out. There is a compromise between free-will and determinism. "The individual *must* react, but has a measure of choice—freedom of will—as to *how* it shall react, *i.e.*, as to *what* reaction it shall make."

HUBERT J. NORMAN.

The Religious Problem and Psychical Research (Le Problème Religieux et les Sciences Psychiques.) (Revue Philosophique, April, 1916.) Boriac, E.

The psychic sciences constitute an attempt to organise the study of various mysterious mental and moral phenomena which occur in human life. In so far as the religious life offers numerous examples of these phenomena, it is natural to ask if those sciences, which have taken such phenomena for their special study, might not be called upon to furnish useful or even indispensable elements for the solution of the religious problem. The whole of these sciences may be resumed under three headings, often confused though actually quite distinct, *viz.*, hypnotism, animal magnetism (including telepathy), and spiritualism. Hypnotism—including suggestion, states of torpor and unconsciousness, and dissociations of consciousness (Janet)—deals with phenomena which are reducible to laws and which do not oblige us to assume the existence of causes or faculties other than those which are already known to exist. Animal magnetism also, a condition uncertain and contested, does not imply conceptions which compel us to depart from the sphere of nature, though it assumes the intervention of a force as yet unknown, more or less analogous to the physical forces, light, heat, and electricity. Spiritualism, on the other hand, deals with phenomena—or claims to do so—outside the sphere of nature altogether, and passing into a plane of activity habitually separated from normal life and activity.

Having defined and described the phenomena in question under these three categories, the writer proceeds to the discussion of their

possible value to the religious problem. The subject may be approached both from the point of view of the scientist or philosopher who surveys the exterior phenomena of religion, and also from the standpoint of the believer to whom religion is a matter of inner conviction and faith. From the first point of view there is no doubt that the religious sciences find in the psychic sciences a wide field for the advance of their peculiar researches. Thus a knowledge of hypnotism and the neuropathic temperament make the various episodes described in the biographies of the saints much more believable. In such histories almost all psychic phenomena, clothed in religious form, are to be found, but preserving under this form evident analogies to those described at the present day under the categories of hypnotism, dissociated consciousness, animal magnetism, and spiritualism. When, however, the religious question is considered from its essential basis the psychic sciences can furnish no great light. The religious sentiments, the religious idea, seem quite independent of all these more or less abnormal psychic phenomena. Religion has its deep and probably indestructible roots in the highest moral aspirations of human nature. Two interpretations are given to spiritualistic phenomena—one which explains them as the subconscious experiences of the medium, and the other which explains them as the manifestation of intelligence, exterior to this world. The first hypothesis is the only one in accord with scientific postulates, and even if the latter were clearly demonstrated, in so far as religion is not solely a matter of belief in a future life, such certitude would have but little value from a religious point of view. The writer concludes that religious experience is independent of objective verification, and, whatever may be the future progress of psychic science, religion will always be a matter of faith and intuition.

H. DEVINE.

The Opposition to the Doctrine of Association of Ideas. [*L'Anti-associationnisme.*] (*Revue Philosophique*, May, 1916.) Dugas, L.

By the exaggeration of the scope of the law of association of ideas a reaction has been provoked which questions not only its scope, but its sense and value. If, says the author of this article, there is a law which seems established in psychology, it is that of association. All the philosophers from Plato to Spencer have recognised it. But the use that English empiricists have made of it has given umbrage to the rationalists of our day, and they pretend and charge themselves with proving that association of ideas, as they understand the doctrine, cannot, and in fact does not, exist.

Brochard, in his article on the "Law of Similarity," which appeared in the *Revue Philosophique* in 1880, opened the anti-associationist campaign. He did not wish to destroy all the laws of association, but only one—the most important by the way—the law of association by resemblance. "Ideas of the past," he says, "being presented at the same time as those of the present, we can observe whether they are like or unlike. But one sees that the perception of the resemblance or contrast only occurs after the appearance of the ideas. It is not the cause but the consequence of association. The ideas are already associated by contiguity at the moment when we notice that they are alike, and their

resemblance would escape us if the law of contiguity had not already done its work."

Association then by similarity comes only in consequence of association by contiguity, or, to put it in another way, there is no association by resemblance, but only a judgment of resemblance passed on associated ideas in virtue of the only law of association which exists, namely, that of contiguity. The association of similar ideas is only apparent; the mind has not the power of grouping such ideas, of searching for them, or of discovering them; it can only wait for them.

But if similar ideas cannot associate together, cannot evoke each other, cannot recall each other, if they associate only by contiguity, it may be asked: (1) How is it that contiguity so often causes the meeting of similarities? One would say that it searched for them, that it aimed at causing the encounter, which ought to be, by hypothesis, accidental, exceptional, and rare. (2) How does the mind take cognizance of a resemblance which it cannot discover at once, at which it does not aim beforehand, which it is not disposed to notice, and which it does not look for?

Brochard's idea of association is a law of reproduction of past phenomena in their order of succession. The more the reproduction of the past is perfect, without change, integral, literal, the more it approaches a pure mechanism, the more it is an automatic unrolling of images and of acts, which no thought directs, the better it realises the idea of association which Brochard has conceived.

Others, however, do not take the word in such a rigorous sense. Plato, for example, remarks that association constitutes a discovery, a progress of thought, that is to say the passage from an idea present to the senses to one which has escaped from the senses. "Recollection," says Plato, "is perceiving a thing in such a manner by the senses or otherwise as to think of another thing which one does not perceive, and which one does not recognise in the same manner as the first; thus, seeing a musical instrument, one thinks of the person who plays it." Reminiscence then enters into the association of ideas, which Plato does not name, but which he designs in a very clear fashion, and of which he expresses the law in these terms: "Reminiscence is caused sometimes by similar things, and sometimes by dissimilar things."

The writer proceeds to examine in detail the theory of association by contiguity—the theory of mechanism, as he terms it—and to point out its fallacies. In the course of his arguments he remarks that the only real law of association is the law of interest, and that this law is applied to memory, considered either as a conservation or as an evocation of the past. For example, I retain from the past only the facts which I had an interest in considering at the moment; I evoke from the past only the facts which I am interested in remembering now.

Although throughout the whole of his article it is evident that the writer leans to the doctrine of association by resemblance, yet he arrives at the conclusion that one cannot put forward association of ideas as a universal and unique law which will be in psychology what the law of attraction is in astronomy and physics. There is not one but several laws of association. They are heterogeneous and irreducible, and they

express the relations between ideas—not necessary relations, but only possible—in such a way that the true psychological problem is to define and class these “possible modes of association.”

These laws of association, then, are simple frames (*cadres*) of thought, frames not rigid, into which thought *may*, not *must*, enter; or, making use of another metaphor, they are different ways, which open before the thought, and which it is *invited*, not *compelled*, to follow.

These laws are only different manners, forms, or methods of thinking. But these methods, which command and direct the course of thought, are themselves imposed on each mind by its own nature, by its own mental idiosyncrasy. Association explains itself by idiosyncrasy of temperament. Besides, this is expressed in common language; a man is characterised by his turn of mind, his form of thought, or, to put it in another way, by the nature or kind of his association of ideas, and one understands by that that if it be his associations which define his mind, it is his mind which determines the course and form of his associations. Still it is necessary to add that each mind has several aspects, several manners or forms of thought; or, to express it in another way, one can engage one's self in different ways of association, and one does not fail to do so. The laws of association, then, can be considered as different and successive points of view of the same mind.

This may be explained by examples:

(1) Association by contiguity characterises minds which are fond of the temporal and spacial order of things, which depend on this order for recovering their recollections, and which do not take the trouble of assembling, grouping, or comparing their ideas. This is also the point of view of minds which are resting themselves, taking a holiday as it were, and which give themselves up to the accidental associations which circumstances bring.

(2) Association by resemblance is characteristic of minds which are occupied and preoccupied by a dominating idea, which bring everything to this idea, discover it everywhere, and strive to seize or to procure comparisons with it. It is also a point of view which certain minds may momentarily take without it being natural or proper to them. Finally, one may see among those in whom this form of association dominates a tendency to gather everything to one's self, to shut one's self up in an habitual circle of ideas; in short, an egoistic and conservative turn of mind.

(3) Association by contrast characterises the minds which receive every new idea badly, and which, to get away from it, and to defend themselves from it, throw themselves at first into the arms of the opposite notion. This form of mental contradiction is common and natural, for it is not always and only from vanity and jealousy that one contradicts. One may do so from an instinct of legitimate mental defence, not defiance, but of simple prudence with regard to the ideas which present themselves. One wishes to take time to get used to these new ideas, so one resists and examines them before surrendering. Association by contrast is also the mark of minds which love extreme fluctuations and oscillations of thought.

J. BARFIELD ADAMS.

Delay and Precocity in the Development of the Child between Two and Four Years of Age. [*Le développement de l'enfant. Retard simple essentiel et précocité de l'enfant de deux à quatre ans.*] (*Revue Philosophique*, May, 1916.), Collin, Dr. André.

On account of the imperfection of the nervous system at birth, a child is not only unable to execute certain movements, walking for example, of which most animals are capable, but it reveals a number of physical signs, such as exaggerated tendon reflexes, Babinski's sign, etc., which Dr. Collin has united under the name *syndrome infantile*.

Under normal conditions this syndrome breaks up about the age of two and a half years, each of the symptoms which compose it disappearing at different epochs. It is on the early or late disappearance of these symptoms that Dr. Collin believes a prognosis can be founded of the mental and motor future of the child.

"Delay and precocity," says Dr. Collin, "are branches of the same trunk." A slight delay in mental or motor development may be a good prognostic, but a flattering precocity is suspicious.

Here are two patients: one, suffering now from dementia præcox, walked at seven months, and at two years astonished friends and neighbours by his intelligence; the other, capable only of rough work on the land, did not walk until he was four years old, did not speak until five, and suffered from enuresis until he was fifteen years of age.

There are, as has been suggested above, certain cases of delay, which are not very serious in themselves, and are due rather to ethnological and family causes than to toxic or infectious conditions, and which develop normally later on. But backward children often remain more or less abnormal, and among them Dr. Collin recognises three principal clinical types.

(1) The weak-minded child with his modalities of intellectual debility, backwardness at school, moral debility, and debility of will.

(2) The child with motor debility, more or less marked, extending from confirmed awkwardness and the impossibility of performing corporal exercises, to slight motor deficiencies, which can hardly be observed. One may meet with mental and motor debility united in the same patient.

(3) The child subject to hysterical manifestation, suggestibility in all its forms being only too likely to produce accidents among children whose mental and motor development has followed an abnormal course. More serious consequences may develop in the adult age, and symptoms of a precocious dementia may manifest themselves. "The nerve cell, which has already given evidence of insufficiency and fragility, may, by forced marches, destroy itself precociously."

The essential cause of delay or backwardness (and, one presumes, of precocity) is weakness of the nerve cell, injured in the place of least resistance by unfavourable circumstances during embryonic development. The nerve cell more evidently than any other embryonic element bears the impress of heredity. The injuring causes may be neuropathic heredity, the intoxications and infections of the parents, such as syphilis, tuberculosis, alcoholism, etc., the accidents of pregnancy and delivery, premature birth, and infantile diseases.

One fully agrees with Dr. Collin that precocity in a child is more suspicious than slight backwardness, and one only wishes that parents and particularly schoolmasters were of the same opinion.

From one's own observation one would be inclined to say that in many normal children, that is to say in children in whom there was no suspicion of precocity, the *syndrome infantile* commences to break up at an earlier age than two and a half years. J. BARFIELD ADAMS.

Movement Cenæsthesia and the Mind. (*Psychological Review*, May, 1916.) Dearborn, George Van Ness.

The importance of cenæsthesia from the physiological standpoint has long been admitted ; its deep significance with reference to psychology is only beginning to be adequately realised, is probably scarcely realised at all by a great body of psychologists. That a study of it in its more comprehensive aspects is likely to be of supreme value, and is destined to throw a flood of light on our psychical organisation, is made abundantly evident in Dr. Dearborn's paper.

The relation between mind and body is a well-worn theme. It has furnished material for the pens of many writers. It constitutes one of the riddles of the universe which is still unsolved. No will-o'-the-wisp is more elusive than this problem of problems. The writer of this paper is of opinion that there has been an excessive use of the deductive method in psychology, which in its descriptive phases and in the abnormal aspects as well as the normal "has most often not been wisely based, not founded 'flat on the nether springs' of universal bodily movement and function." This concept of *universal motion* is the key to the situation, and the failure to explain mind, whether from the dualistic or monistic standpoint, "seems largely dependent on the presumptuous and dogmatic refusal of many to admit this category, spacial dislocation, motion, into their explanations, and almost into their psychology at all." The tendency of modern physical research is to show that matter is in essence really motion, and motion is the source of all forms of energy. It is in the light of this fact, probably, that Dr. Dearborn argues that "now, all the while and everywhere, the conceptual bounds between mind and energy, before assumed impassable, are felt to disappear like fog as we advance into the clear daylight of understanding." This great central truth that the *organism is in universal movement* must never be lost sight of. It is absolutely indispensable if we are to form any adequate conception of what constitutes Life and Mind. Moreover, this universal movement of the body must mean something in the personality ; it must be represented in the concomitant mental aspect of the individual.

A moment's consideration is sufficient to enable us to realise this universality of movement. *Muscular tonus* prevails throughout the entire muscular system. It is constant and spacially general, ranging in various degrees from catalepsy through cramp, exertion, waking activity, lassitude, sleep, coma, and paralysis to death itself, where its zero is reached. In addition to this the *necessity of maintaining equilibrium* is another universal need in the organism ; the *reciprocal innervation of functional antagonists* (e.g., flexors and extensors, pronators.

and supinators); the *irradiation of neurility* (as in convulsions, hysteria, etc.); all these imply a continuous activity in the motor fabric of the body. There are besides the great aggregate of voluntary movements, and the probably still vaster range of "vegetative" motions, which include automatic, reflex, autonomic, instinctive, emotional, habitual, and, finally, what the writer terms "mechanical" processes—respiration, circulation, digestion, and excretion. All this mass of intelligent and beautifully adapted movement is practically ignored by the average academic psychologist, ignored because not realised, nor its meaning in the mental control of behaviour appreciated. It is not regarded in its true light as a primary necessity to a successful psychology.

Cenæsthesia consists of two complementary groups of sense experiences: one kinæsthesia, particular sensation of movement; the other cenæsthesia proper. Both together make up the sensation-fabric, the "empiric skeleton of mind." The kinæsthetic functions are numerous, and include (1) the representation to the integrating nervous system of bodily and environmental movement, each of both the active and passive kinds. (2) Posture, in a broad and general sense. (3) Stereognosis, the recognition of shape internal, within the arms or legs, and external, in a room or along a devious pathway. (4) Appreciation of weight, weight of the external bodily parts as well as of external objects. (5) Maintenance of equilibrium. (6) Sensing of jolts, jars, and material vibrations coming from the environment. (7) Pressure and impacts other than jolts and vibrations. (8) Elaboration (and recording?) of the motor ideas through which the body is moved and controlled. (9) The spacial relationship of local sensations, local signs. (10) Rhythmic control of the circulatory compression of the veins.

This movement sense thus involves practically every portion of the body, and is linked with a great variety of sensations or different influences, differentiated, no doubt, by a corresponding number of histologic receptors.

Cenæsthesia proper, the sensation-fabric comprising both the sub-conscious and the fully conscious aspects of mind, is a subject which in its widest relations is beginning to engage the attention of neurologists, physiologists, psychopathologists, and a few academic psychologists who have not remained under "the cataleptic influence of the 'five senses' bugaboo." Vision, hearing, taste are part, but only part. A countless multitude of impressions are every moment of our lives reaching the sensorium, from within and from without. The sensations produced there vary greatly in quality and intensity, and to properly analyse the mere *feeling of being alive*, besides taking into account the influence of environment, it would be necessary to study exhaustively every part of the body, every somatic region from which sensory impressions are ceaselessly streaming inwards and contributing their quota to the content of mind.

To take *the head* alone, apart from sensations of hearing, vision, taste, and smell, which are all located here, a host of other afferent impulses are constantly issuing from the many and diverse structures which are connected with this important region. Quite different sensations arise from such parts as the scalp, eyes, mouth, nasal fossæ, Eustachian tubes,

middle-ear, the teeth, and the vascular system within and around the brain. These are only some of the "sensations" coming from the head.

The same is true of all the various systems of the body. The *respiratory apparatus*, the kinæsthetic factor of which concerns the whole thorax and abdomen, and even the arms and neck, is the source of a flood of impressions proceeding from its special internal parts, nostrils, larynx, etc., down to the pulmonary alveoli. This system "probably makes larger donation to the pleasantness of being alive than does any other process whatever."

The *circulatory mechanism*, including, of course, the heart itself, whose functions in the normal condition are so intimately associated with our emotional life, is an example of the same kind. The mere change in diameter of the blood-vessels, vasomotor phenomena, may make all the difference between the sensations of well- or ill-being, of elation or depression. In connection with this we have well-ascertained facts as regards the effect on the calibre of the blood-vessels of certain drugs and other agents in common use, such as coffee and tobacco, and allusion is made to the "surprisingly general depression of both mind and body late in the afternoon, euphoria depressed into dysphoria, by simply the absence of an accustomed cup of coffee at lunch."

And so the writer points his argument by taking up each of the other systems of the body, the digestive apparatus and nutritive mechanism, the urinary and genital organs, the skin and mucous membranes, the epithelial and gland tissues, osseous and connective tissues, from each and all of which multitudinous afferent impressions, all differing in quality, pass inwards to the central organs. "Here at all events is ample psychophysiologic country for survey, careful study, and cartography. . . . No one has sufficient sanction to categorically deny this flood of neurokinetic influences, dynamic index of the mind in its relationship to matter."

A knowledge of cenæsthesia is not merely of value as regards the science of psychology, but, by being properly developed and adapted to hygienic requirements, it would have practical educative and therapeutic value for every individual. The thorough exploration of the "living executive house in which we live" is the indispensable basis of self-control; the basis also of that generalised skill on which depends the making of a livelihood.

The subconscious phases of the human mind are intimately linked with cenæsthesia. The "sensational flood" may reach subconscious areas without giving rise to recognisable sensations. Of a vast number of afferent impressions from the internal organs and other parts of the body we are unaware; but they have a potent influence nevertheless on our conscious existence. To the deep and wide implications of the subconscious the writer considers that psychologists are not yet awake.

In fine, cenæsthesia is the sensory and subsensory aspect of universal bodily movement, director of the soul's important business. It lends the meaning to life because it is the index of the reactions of the organism, dynamic index of our personal evolution. By elaborating this moto-cenæsthetic relationship can psychology become really explanatory, and take its rightful place as the queen of the sciences.

T. DRAPES.

Pathological Findings in the Sympathetic Nervous System in the Psychoses.
(*American Journal of Insanity*, April, 1916.) Myerson, A.

This research is based upon the minute examination of the semilunar ganglia in fifty consecutive autopsies performed at the Taunton State Hospital. The following outstanding variations were found: (1) Axonal reaction, a frequent phenomenon in many cases, and prominent in five; (2) emigration of the nucleolus, a rare change, prominent in one case; (3) neurathrepsia, a term used to cover a number of changes of a chronic type, e.g., pigmentation, oxyphilic granules; (4) nuclear changes; (5) capsular changes; (6) increase of interstitial connective tissue.

The findings are thus summarised. First, the semilunar ganglion is apparently often acutely injured in general infection and in enteritis. Second, it is the seat of degenerative processes probably greater in extent than cord, brain, or Gasserian ganglion. These changes probably represent an early and marked senility. Third, there is a decided absence of marked reactive changes (lymphocytes, plasma-cells, etc.), such as are prominent in the central nervous system, Gasserian ganglion, and the related organ or adrenal. Fourth, there is a curious, though not prominent, increase of eosinophilic connective tissue cells which seemed, in one case, to have a phagocytic attraction for injured nerve-cells. The writer emphasises that these findings apply, in his opinion, only to the psychoses. He concludes that in so far as the sympathetic system controls the vascular and glandular system, which plays such a large part in all the great vital processes as well as in the creation and modification of the emotions, a more comprehensive study of this system may throw light on the problems of old age as well as on the psychoses. Also the interpretation of morbid phenomenon needs to take into account the presence of nerve-cells in the organs, such as in the aorta, the heart, the intestines, stomach, genitalia, etc. Symptoms may well arise because of injury to these peripheral cells, either as an antecedent or as a consequent of the disease process. We have, as recent experiments show, drugs that have a peculiar and selective power on the nerve-cells of the autonomic and sympathetic systems. These should be experimentally, as well as therapeutically, used in conditions where the symptoms are even in part vasomotor and glandular.

H. DEVINE.

The Medico-legal Aspect of Dementia Præcox [*La Medicina legale della Demenza precoce*]. (*Archivio Antropologia Criminale Psichiatria e Medicina Legale*, February, 1916.) Ottolenghi, Prof. Salvatore.

In his opening paragraph the author remarks that dementia præcox is interesting from a medico-legal point of view on account of the following circumstances:

- (1) As its name expresses, it attacks the individual at an early age, at the epoch, that is to say, the most favourable for criminal actions.
- (2) The behaviour of the patient, especially at the commencement, may be such as to mask the existence of mental disease.
- (3) It is a very serious malady, causing the decay of all the mental

faculties, but almost always irregularly, so that it may present intervals in which the patient appears to be normal.

(4) From the commencement it attacks the faculties of the highest psychical activity, especially the will and the moral sense.

(5) It is frequently met with in prisons, where it often presents symptoms which may be confounded with common malingering.

(6) It may develop after, and in consequence of, an injury.

The general symptoms which characterise a well-established case of dementia præcox may not offer favourable occasions for at least the gravest medico-legal questions. But, above all, we ought to remember two characteristics of the disease: the deficiency or weakness and deviation of the intellectual, emotional, and volitional faculties, and the disharmony among the various psychical manifestations. These characters give the dominant note to the conduct of the precocious dement, who presents from the beginning a diminution of the logical, critical, and especially of the volitional activities. He shows himself unskilful at work, and from a weakened will and characteristic apathy he will be led into inaction and the most accentuated laziness. Sloth, and a tendency to crimes against property, are favoured by the depression of the sentiment of personal dignity and of the moral sentiment. The depression of the sentiment of modesty finds expression in the crimes against decency and morality, which are often the dominant note of the hebephrenic variety of the disease.

Other crimes may be the consequence of special intellectual deviations, which may present to the patient strange ideas on a basis of persecution—paranoid delusions which are united to impulsiveness, and then the sufferer from dementia præcox may be led to crimes against the person, to violence, to false accusations, to delusions of persecution, and even to suicide.

The initial period of dementia præcox is especially interesting from a medico-legal point of view. The surprising frequency with which this disease develops in young criminals, who are recognised as insane during the expiation of their offence, and are sent to an asylum, gives rise to the suspicion that at the moment of committing the crime they were in the prodromic period, especially when the psychosis reveals itself shortly after condemnation. Pighini maintains that 50 *per cent.* of the prisoners suffering from dementia præcox, studied by him in the criminal asylum of Reggio Emilia, may have been unjustly condemned.

Of the varieties of the diseases, the hebephrenic has the greatest forensic interest, particularly that milder form (the *eboidofrenia* of De Sanctis) so frequently met with. The patient becomes idle, incapable of work, of study, and indeed of all fixed occupation. These phenomena are often the cause of disorders in scholastic life. In given circumstances such patients may wander away from home, commit petty crimes, and even thefts. Others, carried away by an exaggerated opinion of their own personality and genius, turn to new occupations. They abandon their ordinary employment for this new mode of life, in which there is no solidity, and are often drawn into dissipation, illicit speculation or dishonest trickery, spurred on by vainglory and a desire to make a figure in the world. These individuals are often brought before a

court of justice, and are condemned to punishment for crimes which are the undoubted result of the disease from which they are suffering, and require not condemnation but appropriate medical treatment.

There are two points of special forensic interest in the catatonic form of the disease.

(1) The value of such a patient's evidence: In spite of the stupor, immobility, and want of activity, the patient, being conscious, may remember and be able to relate any violence to which he may have been subjected. He also may be able to describe any scenes at which he has been present. So that his evidence, with great reserve, may be worthy of credence.

(2) In this phase of the malady the patient may develop a state of excitement in which he may commit acts of impulsive violence against himself or others. It being found that consciousness is present, in spite of the patient's inability to understand his own state of excitement, or of being able to control it, it may happen that at the first superficial examination he is believed to be a malingerer.

In the paranoidal form of the disease, characterised by delirious ideas, hallucinations, and delusions of persecution and grandeur, the individual may be guilty of false accusations and violence, but the absurdity of the delusions, while sharply marking off this form of alienation from the true paranoia, demonstrates the mental disorder.

In the first period of dementia præcox the patient from his inertia, apathy, and general behaviour, may be confounded with the common criminal, the idler, or the malingerer. In the later stages the disease may be mistaken for paranoia or certain neuropsychopathic states. When the differential diagnosis oscillates between dementia præcox and certain forms of paranoia, the legal consequences may not be very grave, as in any case one is dealing with a psychopathy of a progressive form. The question is more grave when dementia præcox is confused with psychasthenic or neurasthenic states, for here the decision is especially concerned with civil capacity. In neurasthenia the judgment is not serious, while in dementia præcox the prognosis of probable incurability inclines the specialist to exclude the patient from every civil capacity.

J. BARFIELD ADAMS.

Bergson's Theory of the Dualism of Intelligence and Instinct applied to Criminals, Fools, and Geniuses, and to a New Classification of Mental Diseases. [*Il dualismo Bergsoniano dell' intelligenza e dell' istinto applicato ai criminali, ai pazzi, ai genii, e ad una nuova classificazione delle malattie mentali.*] (*Archivio Antropologia Criminale, Psichiatria, e Medicina Legale.* February, 1916.) Lombroso, Dr. Gina.

From its commencement the science of criminal anthropology has been faced with the problem of the intelligence of the criminal, which from many points of view appears to be inferior to the normal, and from others, especially in the cleverness shown in carrying out crimes, and in the satisfying of passions, rises often to the level of genius.

The same contradiction exists in the question of genius. Cætare Lombroso has demonstrated that geniuses, the gods "before whom a

man may without shame bend the knee," pay for their mental strength with some defect—they cannot manage their private affairs, they have infantile fears, technical incapacities, extravagant loves, etc.

The writer of this article believes that the key to this contradiction is to be found in the doctrine of instinct and intelligence which Bergson has propounded in his work, *Évolution Créatrice*.

Instinct and intelligence, according to Bergson, are not the evolution of one faculty, but are two faculties very distinct and different, each of which may be carried separately to the highest grade, without any influence on the evolution of the other.

Instinct has for its domain practical life. Its duty is to satisfy the passions, and the wants of mind and body, to utilise to the utmost and to adapt the instruments, organic at first, afterwards inorganic (machines), which serve for the satisfaction of human needs and passions. It is almost always unconscious, but it may become conscious if some obstacle interferes with the attainment of its aim.

Instinct, according to Bergson, improves and develops with exercise, as intelligence does. To its jurisdiction belongs all our practical life, including the professions, handicrafts, etc.; it is connected with intelligence in so far as the latter must be concerned with the solving of problems. But once solved, the fruit of intelligence passes into the sphere of instinct, which utilises it, fixes it, and makes practical use of it.

Intelligence is the faculty of abstracting, of synthesising, of creating, of reflecting; its duty at first is to solve the problems which instinct places before it, and of aiding it to serve the necessities of life. But from the moment in which it creates language, intelligence is able to pass from the useful material creation to a disinterested creation; from the day on which it perceives that it can work in the abstract, it gives itself up to the creation of ideas. Its essential duty becomes synthesis; it finds out the laws which govern facts, it deduces logical consequences, and it discovers the connection between facts themselves.

This conception of instinct and intelligence throws light on Lombroso's theory of criminal anthropology, and explains its apparent contradictions. If we examine the manifestations of what is generally called the intelligence of the criminal, such as the instruments of crime, the elaborate plots and general craftiness, etc., we find that their object is always the satisfaction of some passion, such as play, debauchery, cheating, or revenge. These all enter into the category which Bergson assigns to instinct. A great development of the faculty of instinct in the criminal perfectly explains how, although endowed with a very weak intelligence, he may be able to treat with success matters of practical life which appear to be very difficult. This would explain the apparent contradiction in the intellectual manifestations of a criminal, who from one point of view appears to be almost a genius, and from another a mental deficient.

If we examine the geniuses described by Lombroso and his disciples, we find that they are always superior to the normal in matters of creating, connecting together series of facts, searching into the secrets of Nature, etc., but that they are inferior in the concerns of everyday life, in family affections, in sexual tastes, in short, in instinct. If intelligence

and instinct are two different faculties of the mind, there is no contradiction in the fact that a genius has an intelligence much greater than normal, and at the same time an instinct mediocre, inferior to the normal, or even diseased.

The writer of this article thinks that possibly this dualistic theory of Bergson may aid in the classification of mental diseases. He suggests the following :

- (1) Diseases of the instinct.
- (2) Diseases of the intelligence.
- (3) Mixed diseases of the intelligence and of the instinct.

(1) Diseases of the instinct would include many of those forms of mental aberration which the public will hardly admit to be such, but which are very serious for the patient and dangerous to society.

(a) Genius (?). In which the intelligence is healthy and even superior, but the instinct is abnormal or deficient. This includes all those cases of clever men, who are stupid in the affairs of practical life, suffer from phobias, lack of natural affection, and have sexual perversions.

(b) Hysteria. In which the intelligence is normal, but instinct, which presides over the affairs of practical life, and the co-ordination of sensations and affections, is diseased.

(c) Moral insanity. In which the intelligence is healthy, but the instinct is partially but gravely diseased.

(d) Sexual psychopathia. In which the intelligence is normal, but the instinct is diseased in one direction only, namely, in sexual affairs.

(e) Obsessions. Here we have patients with healthy intelligence, but instinct is deviated or diseased, though in one direction only.

(f) Folie circulaire. Here we have patients with healthy intelligence and diseased instinct, but only temporarily and periodically. The disease extends, either for some days or some months, in almost all directions, even to those of vegetative life, but after a certain lapse of time the action of the evil ceases and the patient reacquires his normal instincts.

(2) Diseases of intelligence. To this class belong the forms of mental disease in which the patients reason badly, connect ideas badly, synthesise badly, but in which instinct, the faculty, that is to say, which co-ordinates the means to the ends of practical life, is healthy.

(a) Delirium. In which the instinct is normal, or even better than normal, but the intelligence is diseased—it may be in all directions.

(b) Monomania. Here we have patients in whom instinct is normal, who know how to manage their practical affairs, but in whom intelligence is diseased, but only partially and in one direction.

(c) Hypochondria. Here we have the same form of mental alienation as in monomania, only the intelligence is diseased in one given, fixed direction, that of melancholic ideas.

(d) In cretinism, subcretinism, and imbecility we have patients in whom intelligence is inferior and almost absent, and in whom instinct is inferior but not deviated.

(3) Mixed diseases of the intelligence and of the instinct. To this class belong the most apparent forms of mental diseases: those in

which the patients can neither reason nor connect their ideas, and further, cannot even manage the affairs of practical life.

(a) Mania. In this disease not only are the faculties of reasoning, of idealising logically, of language, and of the association of ideas, disordered, but all the senses, even those of hunger, of cold, and of sexual instincts, are altered. The passions also are altered, together with the co-ordination of the acts which ought to satisfy them.

(b) Dementia. Here we have patients in whom both instinct and intelligence are weakened by disease. Hence we have confusion and general uncertainty, incoherence, and want of connection of ideas as much in the field of intelligence as in that of instinct.

(c) Idiocy. Here we have patients in whom from their birth intelligence has been almost completely suppressed, and in whom instinct is weak and diseased.

The writer does not propose this as a finished scheme, but only as an outline, the details of which can be easily filled in. He thinks that this application of Bergson's theory to mental diseases would have the advantage of reminding alienists how great an interest they have in keeping themselves *au courant* with philosophical studies. It would also interest philosophers to unite their forces with those of the alienists to search together for the origins of mental diseases.

J. BARFIELD ADAMS.

2. Clinical Neurology and Psychiatry.

A Clinical Study of Epileptic Deterioration. (Psychiatric Bull., April, 1916). MacCurdy.

This elaborate study of the mental symptoms of epilepsy (somewhat on the same lines as the work of Pierce Clark) is presented in the hope that it may prepare the ground for a sound theory which will dispel the present confusion in epileptology. All students of epilepsy, the author remarks, have noted the glaring mental symptoms and yet no progress has been made in defining the specific psychic characteristics as a guide to diagnosis and prognosis. At present, epileptic deterioration cannot be associated with any constant pathological change, nor can it be correlated with the other most obvious symptom, the convulsions. Even the descriptions of epileptic deterioration are unsatisfactory. There has been no effort to establish the epileptic as a specific type of dementia.

The essential process is defined as consisting in a "progressive loss of interest associated with a failure of mentation in respect to normal stimuli in which interest is lost." The general make-up of the character is typical. The key-note is an overweening egoism. This shows itself positively by purely personal desires and ambitions, and negatively by callousness and inability to see things as others see them. This make-up may precede the convulsions, and is not the result of them. A weakness or absence of the social instinct is a specific factor in the formation of epileptic character. The normal development from the egocentric attitude of the infant to the objectivation attained by the adult fails to be completely carried on. Even the religiosity of the

epileptic is purely a selfish regard for his own salvation. The disappointments necessarily resulting from an egocentric attitude are regarded by MacCurdy as very significant. The patient is engaged in a losing struggle with life and his adaptations break down. He gives up the struggle in temporary flights from the world (unconsciousness) or exacerbates it in impulsive acts of wantonness or crime. There is a marked contrast with the schizophrenic reaction of dementia præcox. There we see an imaginary world replacing the real world, delusions instead of realities, friends turned to foes. Here love does not turn to hate but to indifference. The personality is not distorted but blotted out. Contact is not lost at a few points but at all points. A diffused and persistent lack of mental tension becomes typical.

A prominent feature of epileptic defect is the contrast between automatic and purposeful mentation. When the patient's interest can be aroused his mind acts, but it becomes progressively more difficult to arouse his interest. The intellectual impairment, consequent on loss of interest, itself facilitates loss of interest and a vicious circle is established. The result on the personality is that the patient apparently ceases to be an egotist, for egotism is bound up with interest. Hence the hypochondriacal stage in which the patient falls back into a mere childish insistence on trivial comforts and discomforts.

When the deterioration begins to affect the intellectual centres, the clinical picture resembles that of arterio-sclerosis. But with a difference. The arterio-sclerotic dement arouses sympathy, he seems a struggling fellow creature in distress. The epileptic, on the other hand, has lost social and human interest, he is now a type rather than a human being. There is another point of difference. While the arterio-sclerotic show an all-round defect, nearly every epileptic is apt to show at some time or another a localised ability combined with his general dilapidation. There is a still greater degree both of slowness and of perseveration; there is also a typical but not invariable tendency to repeat questions put to the patient.

Even before the final stage the epileptic resembles the defective, but is more stolidly indifferent to ordinary stimuli and more variable when reaction is induced. Healy, indeed, regards variability in response to tests as diagnostic of epilepsy.

Clark's "voice sign" of epilepsy—the lack of inflexion, modulation, or change of pitch, to be detected in every patient by a trained ear—becomes more obvious when deterioration sets in. The aphasia-like stage proceeds to absolute mutism. As speech is more or less lost the patient's whole existence tends to become vegetative. He becomes like an infant and sleeps in the foetal position, and walks on the balls of the toes like an infant learning to walk. But the epileptic goes back on the whole to an earlier stage than the infant, whose experience is living and intelligent. The changes in the epileptic's expression are distinctive. At first "dour" and sullen, it acquires a far-away disinterested look, then rigidly impassive with lack-lustre eyes; finally the eyes acquire a meaningless brightness. All this is very unlike dementia præcox, and when that disorder is combined with epilepsy there is an invariable absence, in the author's experience, of "dissociation of affect," and no silly smiling, etc., is seen. The epileptic bleaching of the emotions

seems strong enough to counteract the emotional vagaries of dementia præcox.

Notwithstanding the epileptic's tendency to allow unbridled outlook for selfish tendencies, we are not to accept the current opinion that he is a highly sexualised animal. He has very little sexual feeling, and the removal of barriers between the sexes in epileptic colonies causes much less trouble than was at first anticipated.

The author regards insistence on loss of interest in the ætiology as important in view of treatment. Even a severe degree of epileptic dementia may yield to treatment, when the treatment consists of a persistent effort to awaken the patient's lost interest. The idea of an organic change being exclusively responsible for the dementia must be eliminated. It is the loss of interest which is the dynamic factor.

Surveying the whole group of phenomena and seeking to explain them, it is found that the epileptic is one unable to objectivate his affections and to subordinate himself to the social world. He is, therefore, bound to meet trouble and bound to avoid the world that causes that trouble. He retires from the world. His mental content grows smaller and smaller. The world is shut out. That is what the epileptic gains by his dementia.

The acute symptoms serve a similar purpose. They are all marked by loss or clouding of consciousness. When consciousness is clouded the striving for personal childish expression can be given an unhampered outlet. The difference is that, when contact with the world is acutely lost, the patient's potential energy is suddenly liberated in a fit of fury; when it is slowly lost his energy and interest are being sapped. In both cases there is a flight from adaptations difficult to maintain. The *grand mal* attack is a sudden reaction of the same type as the chronic one of deterioration. The attempt of Ferenczi and Clark to account for the convulsive fit on Freudian lines as a symbolic outlet for unconscious wishes MacCurdy cannot accept. Its origin must for the present be left an open question.

A few final observations of general psychiatric interest are appended. If curtailment of interest involves relaxation of mental tension and secondary mental impairment, we may have here a sequence which is more than a peculiarity of epilepsy; it is probably a general psychiatric principle. If so we can no longer preserve a sharp clinical line between functional and organic psychoses. Again, it is a truism that all insanity is anti-social. But nowhere is egoism so clearly the key-note as in epilepsy. It is obvious that there are innumerable gradations to quite dissimilar forms. But wherever we find the egoistic and anti-social tendencies strong we may well say that there is an "epileptic reaction." "We all have traces of the epileptic reaction when we give way to temper, choose the easier path, or allow our egoism to sway our judgment. . . . To put the matter in lay terms, we must love, not merely be loved; we are under compunction to love or cease to be ourselves, cease even to think."

Throughout this lengthy paper every phase dealt with is illustrated by detailed cases of patients in the Craig Colony of New York.

HAVELOCK ELLIS.

On the Interpretation of Symptoms in the Infective Exhaustive Psychoses.
(*Journal of Nervous and Mental Disease*, June, 1916.) Brown,
Sanger.

The toxic exhaustive psychoses are well recognised as a clinical group, and they are easily diagnosed in typical cases, but in cases presenting unusual features the symptomatology is obscure and the diagnosis difficult. The writer feels that the clinical descriptions should be improved, and with this end in view he adopts a schematic arrangement by which the symptoms are grouped under different headings according to the basis on which they arise. The various symptoms are thus described under these three headings: the organic part of the reaction, the affective part, and the psychogenic part.

The organic part of the reaction.—Delirium is the symptom-complex most closely associated with the physical disorder—toxæmia, elevation of temperature, etc. In delirium, clouding of consciousness, disorientation, amnesia, fabrication, perceptual defects, elaborate and vivid hallucinations of sight, hearing, taste, smell, and touch, are the characteristic elements. Frequent changes in the degree of clouding are usual, and at times complete stupor ensues. Associated with these mental symptoms are various physical disturbances toxic in origin, *viz.*, rapid action of the heart, dilated pupils, gastro-intestinal derangements, slurring and ataxic speech, and, in some instances, multiple neuritis.

The affective part of the reaction.—Apart from the plainly organic mental symptoms, affective or mood changes are responsible for a certain group of symptoms. These are depression, diffuse anxiety and suicidal impulses, or frank mania and elation with its characteristic features. These reactions may be slight, but frequently dominate the clinical picture and thereby lead to a faulty diagnosis.

The psychogenic part of the reaction.—This includes the delusional trends, peculiarities of behaviour, symbolism, etc. These symptoms are either superficial, and dependent upon the state of perplexity and confusion, or are of definite psychogenic origin, the expression of underlying trends of the personality which the state of impaired mental control allows to come to the surface. These latter symptoms often come to the surface after the delirium has entirely subsided.

These views may be utilised for the better understanding of certain clinical conditions. Since the organic part of the reaction is a very definite reaction on the part of the nervous system to toxic and exhaustive factors, the symptoms may be expected to appear when such factors are found. They are thus seen in drug psychoses, alcoholic deliria, as secondary symptoms in a number of psychoses of gross brain disease, as well as in the exhaustive toxic psychoses. The reaction does not appear in dementia præcox, and only in manic-depressive insanity when exhaustion or toxæmia supervenes. This schematic grouping of symptoms helps us to determine what ætiological or diagnostic significance to give to each. Cases of short duration will show mainly organic features; others of equally benign character may show marked affective reactions. Those with psychogenic reaction will be more serious, unless such symptoms are purely superficial, and the result of confusion. Further study is desirable in the direction of a fuller understanding of

the personality, and also in regard to the cell findings and pathological changes. To carry out these studies successfully a clear clinical differentiation is a preliminary necessity.

H. DEVINE.

The Role of Hallucinations in the Psychoses. (Journal of Nervous and Mental Disease, March, 1916, pp. 231-250, vol. xliii, No. 3.)
Harrison, Forrest M., M.D.

Dr. Harrison prefaces his remarks on the subject in particular by a summary of historical instances of hallucinosis as exemplified in certain Biblical stories, and as in the cases of Mohammed, Luther, Jeanne d'Arc, Socrates, Swedenborg, and others; and he notes the influence which those suffering from hallucinations have had in the making of history.

The number of hypotheses advanced as explanations of the mechanism of hallucinations is an indication of the speculative nature of our knowledge of cerebral function. Two main points were considered in the elucidation of the problem—the sensory character of the phenomena and the part played by the mental state in determining what the hallucinatory object should be. The ideational centres were assumed to be locally separated from the sensory centres, and, this being the case, it was but natural to relegate the imaginative factors of fallacious perception to the higher elements of the cortex, and to assign the sensory part to those cells where incoming impressions are transformed into sensations. Ideas of sensation can, however, never rise to the level of true sensation; the ideational image lacks the feeling of objectivity, of externality. The centrifugal sensorial theories sought to explain this by assuming that the sensorial channels become the seat of a centrifugal nerve current, originating in the higher ideational cortical centres, passing to the sensorium, and in some cases to the sense organ, where the condition present indicated a local disturbance. As this was found to be inconsistent with accepted physiological beliefs, a reverse, or centripetal, process was assumed. Once the conclusion is reached, however, that the centres of sensation and of imagination are not separated, these beliefs become untenable. James held that in the cortex the sensory and ideational elements are the same, and that the difference in the process depends on the intensity of the stimulus; that from the periphery is usually more intense than that from the neighbouring regions of the cortex, and because of the difference in intensity, we tell reality from phantasy. If, however, for any reason the stimulation of these centres becomes as intense as that from the periphery the mind can see no difference, and an hallucination results.

In regard to the frequency of hallucinations among the 514 cases studied, Dr. Harrison found that they were present in 44·74 *per cent.*; and he notes that this figure would have been higher had he excluded readmissions and those diagnosed as not insane. Comparing the statistics of various observers (and including his own) he arrives at a percentage of 40·7; this is for a total of 3,160 cases. Of 230 cases which were subject to hallucinations, auditory fallacious perceptions, either separately or combined, were present in 210, or 91·3 *per cent.* Next in frequency came auditory and visual combined, 23·91 *per cent.* Then visual alone, 6·08 *per cent.*

Tabulation of the "content of the various hallucinatory percepts" was almost impossible on account of their diversity. It was difficult to isolate hallucinations of taste from those of smell in some cases. Hallucinations of smell were rare, and were generally of an unpleasant character. The most frequent hallucinations of touch were the various paræsthesias and electric shocks.

"No two cases were alike, each presenting its own individual characteristics and peculiarities, and the content of the hallucinations seemed to point to no form of psychosis in particular."

In the alcoholic psychosis hallucinations were present in 80 *per cent.* of the cases; but the total number of cases (5) was too small to render this figure any value from a statistical standpoint. Of 170 cases of dementia præcox 70·58 *per cent.* were hallucinated. Of 50 cases which were not apparently hallucinated, 10 were catatonic in type; but in only 30 cases of the entire number studied could it be stated, with any degree of certainty, that hallucinations did not exist. It is noted that these conclusions are in conformity with those arrived at by such authorities as White, Tanzi, and Bleuler. In the largest number of cases there were auditory hallucinations. Six cases in which the hallucinations were visual were all of the catatonic type.

Of 13 cases diagnosed as prison psychosis, 9, or 69·23 *per cent.*, were hallucinated; auditory hallucinations were again the most prevalent. Of 15 cases of epilepsy, 46·66 *per cent.* experienced auditory and visual hallucinations. In the cases of general paralysis of the insane 45·28 *per cent.* were hallucinated, auditory hallucinations again predominating. In the manic-depressive group only 21·50 *per cent.* were hallucinated; 17·85 *per cent.* of these were auditory. This conforms to the finding of others.

Their rarity in the manic-depressive group is suggested as an important diagnostic factor in helping to differentiate between the maniacal phase of this psychosis and the excitement of dementia præcox.

Hallucinations were found to be rare in imbecility, in senile dementia, and in cases of psychosis associated with arterio-sclerosis.

The following conclusions are deduced:

- (1) Hallucinations are among the commonest symptoms met with in the insane, occurring in approximately 40 *per cent.* of the cases.
- (2) Of the various types, those of hearing are most frequent, occurring either separately or combined in 90 *per cent.* of the cases hallucinated.
- (3) The content of the hallucinatory percepts is not characteristic for any particular psychosis.
- (4) Visual disturbances seem extremely common in the catatonic variety of dementia præcox.
- (5) Hallucinations are common in dementia præcox, occurring in practically all the cases. On the other hand, they are rare in the manic-depressive group, seldom if ever occurring typically.
- (6) Hallucinations are rare in arterio-sclerotic dementia and senile dementia.
- (7) Hallucinations are rare in sane persons, even though they be of a psychopathic make-up.

HUBERT J. NORMAN.

A Comparison of the Mental Symptoms found in Cases of General Paresis with and without Coarse Brain Atrophy. (Journal of Nervous and Mental Disease, March, 1916, pp. 204-216.) Southard, E. E.

The writer is of opinion that, though the endeavour to find structural change as the basis for psychopathic conditions is the more valuable method of procedure and the one which gives rise to the most promising results, the position that mental disease may be a disease of function involving no more than normal and inevitable physiological changes in the nervous system is still perfectly tenable, perhaps even correct for some cases. Referring to former investigations, he states that the characteristic delusions of general paresis are in regard to the patient's personality, and that they can be roughly correlated with frontal lobe lesions; and that non-autopsychic delusions cannot be so correlated. These conclusions were in general harmony with findings in dementia præcox.

In answer to the question whether anatomical appearances can be safely trusted to gauge severity of processes, he concludes that, though in certain cases these appearances can *not* be trusted, the assumption is justified that the "atrophic brain is more deeply affected than the normal-looking brain"; and it is questionable whether "the microscope can be trusted much farther quantitatively at the present time."

The method adopted was that of dividing a series of parietic cases on which autopsies were done into two categories. One was of brains which showed substantial gross lesions, the other of brains which did not exhibit such signs. All of the cases showed the "characteristic microscopic lesions developed by the Nissl-Alzheimer school." These two groups—of "normal-looking" and "abnormal" brains—were not in the one case early and in the other late phases of the disease. "Mild cases are often the longest cases. There is no question of a progressively severer disease in many cases."

The mental symptoms associated with the brains in these two categories were compared with those occurring in a series of 17,000 cases of mental disorder, "only a small portion of which have ever come to autopsy and many of which are still alive." The symptoms are tabulated in their order of frequency in (1) the anatomically mild cases; (2) the anatomically severe cases; and (3) in the seventeen thousand cases of mental disease in general. The results are as follows; the symptoms are given in their order of frequency: In (1) amnesia, motor restlessness, disorientation, allopsychic delusions, dementia, depression, irritability, defective judgment, psychomotor excitement, autopsychic delusions, destructiveness, resistiveness, insomnia, violence, aphasia, hallucinations (not specified), convulsions, hallucinations (visual), sicchasia; in (2) amnesia, motor restlessness, disorientation, dementia, depression, aphasia, defective judgment, autopsychic delusions, irritability, hallucinations (not specified), hallucinations (visual), euphoria, psychomotor excitement, incoherence, confusion, expansiveness, insomnia, convulsions, exaltation; in (3) psychomotor excitement, allopsychic delusions, dementia, auditory hallucinations, motor restlessness, depression, autopsychic delusions, insomnia, incoherence, amnesia,

violence, visual hallucinations, irritability, defective judgment, disorientation, destructiveness, confusion, resistiveness, somatic delusions.

HUBERT J. NORMAN.

Tumour of the Centrum Ovale of the Right Pre-frontal Lobe. [Tumore del centro ovale del lobo prefrontale destro.] (*Rivista di Patologia Nervosa e Mentale*, April, 1916.) Giannuli, Dr. F.

T. T—, æt. 50. Family and personal history good. In her twenty-sixth year she married a syphilitic. She aborted in her first pregnancy. Four other pregnancies went to full time. She lost a male child, when he was æt. 8, of convulsions. When she was æt. 40 she commenced to suffer from pains in her bones, which were called rheumatic, and did well under iodine treatment. At the age of forty-five the pains returned with greater violence. Wassermann reaction positive. Patient improved under treatment by mercury and iodides. In forty-ninth year, after having nursed a daughter through a long illness, her friends noticed that she had lost her usual gaiety. Later, her daughters observed a certain apathy and loss of memory. She forgot what she had done during the day, and lost hours looking for things she had mislaid. She complained of an almost constant, painful feeling of weight in the frontal region of her head. Disorientation, both for time and space, made its appearance and increased rapidly. Her daughters frequently saw her return late in the afternoon quite exhausted, and she confessed that she had not been able to find the shops where she was accustomed to buy the daily provisions, and that it was only with difficulty that she had been able to discover the door of her house. She was often brought home by policemen, not being able to find her own habitation without a guide. All the while, her behaviour was normal, she quite understood what was said to her, and she realised her weakness of memory.

In May, 1914, she swooned, and remained unconscious for two days. There were no paralytic sequelæ to this fit. In the following month she had another fit, which only lasted one hour. After this she complained again of pain in the frontal region. Her memory became worse, and she seemed to have lost all ideas of orientation. In July she began to suffer from frequent vomiting, and she was sent to a general hospital. Here anti-syphilitic treatment was resumed, and the patient appeared to benefit. But one day she had a serious attack of hæmatemesis, which nearly proved fatal, and was followed by profound anæmia, which was treated by iron and arsenic. As the mental phenomena did not improve, after a month in the general hospital the patient was sent to an asylum, and came under the observation of Dr. Giannuli.

The condition of the patient on her admission was rather serious: there was profound anæmia, small and frequent pulse, liquid food only could be taken, tongue dry and furred, and a tendency to vomit.

The right pupil was more dilated than the left. Slight nystagmus.

Tremor of the muscles around the mouth, and of those of the tongue.

The patient's gait was slightly ataxic.

Speech a little slow, but not aphasic.

Handwriting gave evidence of tremors, disgraphia, and substitution of words.

No deficiency in special senses, or in general sensibility.

Reflexes exaggerated on right half of body.

Functions of rectum and bladder normal.

Cranio-percussion was painful bilaterally in the fronto-parietal region.

The patient's expression was that of a tired and dejected person.

She replied to questions slowly, but coherently. Recognised objects correctly, and carried out commands properly. She complained often of a painful weight inside her head, but did not manifest delusions nor complain of sensorial disturbances.

At first the lack of orientation of which her daughters had spoken was not noticeable, but after a few days it was evident that her surroundings were always new to her ; she was like a person who was constantly arriving in a new place. Although she saw the doctor and the nurse every day, she treated them as persons whose acquaintance she was making for the first time.

She could not remember the events of the day nor of the hour, but she remembered a sensorial stimulus for a few minutes ; however, after a brief lapse of time she could not recall even that, consequently it was impossible for her to enrich her intelligence by new acquisitions.

In this case mnemonic falsifications were not lacking. When the doctor came to visit her in the morning, the patient would ask him if he had seen her daughters, who, she said, had just gone out ; another time she would describe a pleasant walk which she said she had taken, although she had not been out of doors ; or she would speak of a succulent supper she had prepared for her family.

She was generally apathetic, occasionally depressed. She spent several hours of the day in sleep.

An atypical case of general paralysis was suspected.

A fortnight after her admission to the asylum she had an attack of hæmatemesis, which produced a state of profound anæmia. Afterwards there was an increased tendency to vomiting. There was no pain in the back or in the region of the stomach or in that of the umbilicus. Digestion appeared to be easy.

Ten days later there was another attack of hæmatemesis, followed by a succession of vomitings. The patient afterwards began to complain of cramp and pain in the right leg. These symptoms were more intense at night. A slight contraction of the painful limb was noticed. A certain amount of paresis, accompanied by paræsthesia, of the right limb was observed.

In October the patient had an attack of epilepsy with froth at the mouth and involuntary urination. The nurse observed that the convulsions were most marked on the right side. The monoparesis, vomiting, epileptiform attack, and the pain in the head gave rise to the suspicion of an intracranial neoplasm. Ophthalmic examination was negative.

A week later epileptic attacks recurred, this time in a series, which continued all day. Although the outlook was not good and the diagnosis doubtful, energetic anti-syphilitic treatment was adopted, with the result that the pain in the head and the paræsthesia became better, but there was no improvement in the paresis.

After forty days of this treatment the disorientation in time and space was less marked, and the patient could hold a more satisfactory conversation with her daughters and the nurse, and even recall more faithfully the events of the day. She was also less sleepy.

For sixty days longer she was treated with iodides and arsenic. During this time epileptiform attacks of a type clearly Jacksonian occurred at intervals.

On February 24th the patient was attacked by a series of epileptiform fits of the Jacksonian type, which continued for three hours and ended in death.

Post-mortem examination.

Dura mater slightly thickened, but not adherent to the cranium. Pia mater thickened and œdematous, and in some places could not be separated from the cortex without bringing away with it shreds of the brain substance, the principal points of adhesion being the dorsal half of the left Rolandic area and the orbital surface of the anterior pole of the right frontal lobe.

The cerebral gyri in general did not present any alteration and were not thinned out; in the frontal lobe of the right hemisphere, however, the gyri appeared to be crushed, their surfaces smoothed out, the sulci made shallow, and the convexity of the right frontal lobe was more vaulted than that of the corresponding left lobe.

Palpation of the cortical substance revealed two areas of hard elastic consistency, one more extensive, being in the orbital region of the right frontal pole; the other, more circumscribed, in the dorsal half of the (left) ascending frontal convolution, this (latter) hardness was felt a little deeply, and did not pass posteriorly and anteriorly beyond the bottom of the sulcus Rolandi and the prefrontal sulcus. The sense of resistance was softer in the frontal lobe of the right hemisphere than in that of the left.

In the orbital portion of the frontal pole of the (right) hemisphere the hardness, which was almost wooden, was very superficial. Here a shred of brain substance had been torn away in stripping off the pia. In this region the sulci and the gyri had lost their normal morphology, and it was with much difficulty that the former could be individualised. The surface of all the gyri, which were near the neoplasm, was granulous and coloured dark grey. The gyrus rectus was compressed. The olfactory sulcus was no longer recognisable. The olfactory peduncle was displaced medially, and one could no longer distinguish on the right side the figure H which furrows the orbital surface of the frontal pole.

A transverse section was made about 30 mm. behind the frontal pole. It was then seen that the centrum ovale of the right hemisphere was the seat of a new formation of a rounded form, of the hardest consistency, and well defined from the surrounding nervous substance. The cut surface of the neoplasm was smooth, of a hard-wood consistency, with its margins indicated by a rose-coloured, ribbon-like line. All around the new formation the white substance of the centrum ovale was softened to the extent of 5 mm.

The gyri of the medial and inferior faces of the right hemisphere were visibly compressed. Segments of the gyrus cinguli, of the first convolu-

tion of the limbic lobe, and of the medial face of the first frontal convolution were compressed and atrophied. Ventrally, the lateral half and orbital portion of the second frontal convolution were very much compressed and atrophied.

The new formation measured in its dorso-ventral diameter 3 cm., and in its transverse diameter 2.5 cm.

The area occupied by the new formation was that region of the centrum ovale in which radiates the foot of the corona radiata, and medially to the foot, the region of the terminal radiations of the occipito-frontal fasciculus, and more medially still by the region of the radiations of the forceps corporis callosi.

The new formation rapidly decreased in size, until at a distance of about 43 or 44 mm. behind the frontal pole there was no trace of it. Thus it reached the point where the lateral ventricle terminates in a *cul de sac*, and it compressed the subependymal grey substance. It also reached the point where are found the anterior terminations of the occipito-frontal fasciculus, and more laterally still the uncinate fasciculus. The posterior extremity of the neoplasm touched and compressed the head of the right caudate nucleus.

In the left hemisphere a gummatous infiltration had invaded the convolutions of the Rolandic area.

The valves of the heart were not indurated, and there was no atheroma of the arch of the aorta.

There was passive congestion of the inferior lobe of both lungs.

Liver enlarged, yellowish in colour, cut surface soft, borders rounded, signs of commencing fatty degeneration.

Spleen and kidneys congested.

In the stomach was a small quantity of blood. Around the pylorus was an annular infiltration, which extended about a finger's breadth into the walls of the stomach and duodenum. The infiltration, which was of the hardest consistency, had dilated the pyloric orifice, and presented a saucer-like ulcer with raised and eroded edges. The ulcerated surface was covered with a yellowish-white liquid, suffused with blood. In the centre of the ulcer one observed a gaping blood-vessel, the mouth of which was blocked with a clot.

Intestines normal; mesenteric glands not infiltrated.

Anatomical diagnosis: Gummatous infiltration of the centrum ovale of the right pre-frontal lobe and of the dorsal half of the frontal and ascending parietal convolutions of the left lobe; ulcerating carcinoma of the pylorus with vascular erosion; incipient degeneration of liver; congestion of spleen and kidneys.

After a lengthy review of the physiology and pathology of the pre-frontal lobe and its centrum ovale, particularly with reference to the points brought out by the case under consideration, the author sums up as follows:

(1) The symptomatology of this tumour of the centrum ovale of the right pre-frontal lobe was of a nature especially psychopathic.

(2) The psychopathic syndrome was precocious and manifested itself long before the development of the general phenomena of an endocranial tumour.

(3) The whole group of psychopathic phenomena was made up of two-

orders of symptoms: symptoms specific of the seat of the tumour, and symptoms generic of an endocranial tumour.

(4) The specific symptoms may be divided into:

(a) The fundamental symptoms of the defect of the static memory and of fixation (attention?).

(b) The correlative symptoms of disorientation in space and time, the *moria* of Iastrowitz, and the mnemonic falsifications.

(5) The generic symptoms of an endocranial tumour were the intellectual torpor and the intercurrent states of somnolence.

(6) The predominant function of the centrum ovale (of the pre-frontal lobe) is the function of anatomical and psychical association which presides over the static memory and fixation (attention?).

J. BARFIELD ADAMS.

Aphemia due to a Tumour of the Right Cerebral Hemisphere in a Right-handed Patient [*Afemia da tumore dell' emisfero destro in destri-mane*]. (*Rivista di Patologia Nervosa e Mentale*, April, 1916.) Buscaino.

This is an abstract of the report of a case by U. Raggi, which appeared in the *Rivista Italiana di Neuropatologia, Psichiatria ed Elettroterapia*, vol. viii, fasc. 4, 1915.

A right-handed individual commenced to suffer from Jacksonian convulsions, and contemporaneously he developed an incapacity of pronouncing words. The disturbances were irregularly periodic, but always contemporary, and increased constantly in violence. In the intervals the patient presented noticeable alterations in speech—incomprehensible words, paraphasia, etc.

Post-mortem examination showed that a tumour occupied all the cortical and subcortical substance of the second, third, and ascending right frontal convolutions. Microscopical examination excluded the existence of any alteration in the left hemisphere.

The case is noteworthy because "it demonstrates that in the right-handed, Broca's centre may be localised in the right hemisphere; it demonstrates further that the special use of the right hand and arm does not necessarily induce the development of the centres of language in the opposite hemisphere, and makes one doubt the value of Leipmann's suggestion for the prophylaxis of aphasia, that is to say, cultivation of a motor ambidexterity in order to obtain a consequent cerebral ambidexterity."

Seeing then the frequent proofs of abnormalities in the seats of the centres of language, one may ask "if in the number of such abnormalities one may not place many of the cases of lesions of Broca's centre without aphasia collected by P. Marie and by his school?"

J. BARFIELD ADAMS.

Contribution to the Diagnosis of Tumours of the Corpus Callosum [*Contributo alla diagnosi dei tumori del corpo calloso*]. (*Rivista di Patologia Nervosa e Mentale*, April, 1916.) Buscaino.

This is an abstract of the report of a case by A. Agosta, which appeared in the *Rivista Italiana di Neuropatologia, Psichiatria ed Elettroterapia*, vol. viii, fasc. 2, 1915.

A woman, æt. 52, in a state of good health, was seized unexpectedly by a fit, which was immediately followed by psychical disturbances, interrupted by apoplectic phenomena, and intervals of complete well-being. The disease progressed rapidly, left paresis appeared, signs of slight deficiency of left abducens and left facial nerve, cephalalgia, somnolence, cachexia, and coma. Psychically: Delirium with fanciful ideas, apathy, unconsciousness of her own condition. The left pupil was completely rigid to light, the right pupil reacted very slowly.

Post-mortem examination revealed a glio-sarcoma limited to the antero-inferior part of the corpus callosum. There was also a peduncular hæmorrhage, which explained the pupillary symptoms.

From the analysis of this case, in the light of others described in literature, Agosta draws the following conclusions:

(1) Tumours located in the corpus callosum give a specially psychical symptomatology from the beginning; the general signs of an intracranial tumour being few, the somatic alterations, which an objective examination reveals, being few also.

(2) The hypothesis of a tumour of the corpus callosum ought always to be discussed when a patient suddenly develops psychical disturbances, such as lack of connection of ideas, strangeness of acts, amnesia, irritability of character, and emotional indifference in contrast with a mental lucidity which is often present.

(3) Left motor apraxia may be considered as an important diagnostic sign if it be present, but its absence may not have any value.

(4) In the differential diagnosis one ought especially to think of progressive paralysis, and of tumours of the frontal lobes.

J. BARFIELD ADAMS.

The Diseases of Characters. [*Les maladies des caractères.*] (*Revue Philosophique*, May, 1916.) *Fiessinger, Dr. Ch.*

The title gives one a wrong idea of this work, which is concerned not with the diseases of characters, but with the way in which characters are affected or altered by disease.

Disease, says the writer, acts on the character as a shock. Acute diseases are the least interesting, for here the natural disposition of the patient is quickly buried under the ruins of his moral and physical forces. In chronic diseases, on the contrary, a defence is organised. The instinct of conservation increases the egoistic tendencies of the sufferer. The forms under which these tendencies present themselves depend generally on the traits of the original character—the bitter becoming more bitter, the irritable more irritable, the jealous more jealous. Others, on the contrary, lose their defects, not by wisdom but by weakness—for example, the glutton and the rake are often rendered sober and chaste by their maladies.

The writer gives the following illustration of the way in which character may modify the course of disease: "The tender-hearted, the susceptible, the timid, and all those who feel keenly, in the case of fever reach to higher degrees of temperature than slanderers and fools. So that to attempt to lower a degree of temperature in these cases is to struggle against the sensibility of the patient."

Some of the following statements are in accordance with general experience, but others require confirmation. "The dyspeptics are sad and depressed; sufferers from thyroid disease are irascible; the hepatics sulk in sour temper, which results from the laziness of the nervous elements bathed in humours vitiated by bile or cholesterin. The cardiacs, when they are confined to an armchair, are subject to fits of jealousy—particularly of their wives. The tuberculous easily become wicked—novelists will have to look this matter up, for the consumptive in fiction is usually angelic. Finally, those suffering from disease of the adrenals are easily discouraged."

The writer lays stress on the psychological difference between the obese from gluttony and the obese by fault of nutrition—faults of digestion, I suppose he means. The first have dull sensibility, and an intelligence in repose; the others a keen sensibility excited by malnutrition, which, joined to a feebleness of movement, "develops a taste for analytical and minute conceptions." Physical weakness and obesity, according to the writer, incline the mind towards scepticism. Had Renan been thin instead of stout, *Les Origines du Christianisme* would never have been written.

That disease, particularly chronic disease, does modify character, all will be ready to admit, but it is doubtful whether it always does so in the ways indicated by Dr. Fiessinger. The control of passion, for example, is a matter of education—of the development of the power of inhibition, and disease probably acts by weakening this power. It is the latest acquirements which disappear first in the moral and physical *débâcle* of disease. The weakening of the power of inhibition, or self-control, probably accounts for the appearance during an attack of illness of traits apparently foreign to the patient's character, but always latent therein.

J. BARFIELD ADAMS.

Part IV.—Notes and News.

THE MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.

THE SEVENTY-FIFTH ANNUAL MEETING of the Association was held at No. 11, Chandos Street, London, W., on Thursday, July 27th, 1916, Lieut.-Colonel David G. Thomson, M.D., President, in the chair.

There were present: Sir George H. Savage, M.D., and Drs. D. Bower, R. Brown, W. Brown, R. H. Cole, M. Craig, J. F. Dixon, E. L. Dove, R. Langdon-Down, T. Drapes, J. H. Earls, C. F. Fothergill, J. W. Geddes, H. E. Haynes, G. H. Johnston, E. M. Johnstone, A. Miller, W. F. Nelis, H. H. Newington, H. J. Norman, J. G. Porter Phillips, J. N. Sergeant, G. E. Shuttleworth, R. Percy Smith, J. G. Soutar, T. E. K. Stansfield, R. C. Stewart, J. Tattersall, F. R. P. Taylor, T. S. Tuke, H. Wolseley-Lewis, and R. H. Steen (Acting Hon. General Secretary).

Visitor: Dr. S. E. White.

Present at the Council Meeting: Lieut.-Colonel D. G. Thomson, M.D. (President), in the chair, Drs. R. H. Cole, Thos. Drapes, A. Miller, H. H. Newington, H. J. Norman, J. G. Porter Phillips, J. N. Sergeant, J. G. Soutar, T. E. K. Stansfield, T. S. Tuke, H. Wolseley-Lewis, and R. H. Steen (Acting Hon. General Secretary).

The following sent communications expressing regret at their inability to be present: Drs. G. D. McRae, James Chambers, G. S. Pope, C. C. Easterbrook, R. B. Campbell, G. E. Peachell, H. C. MacBryan, T. S. Adair, L. R. Oswald, D. Orr, H. T. S. Aveline, John Keay, and R. Armstrong-Jones.

MINUTES.

The PRESIDENT said that as the minutes of the previous Annual Meeting were printed in the Journal for October, 1915, he assumed that the meeting would agree to take them as read, and authorise him to sign them. Agreed.

OBITUARY.

The PRESIDENT said that before commencing the ordinary business it was his duty to announce that the Association had to deplore the loss of a member in the person of Surgeon George B. Moon, of the Royal Navy. Dr. Moon was formerly Assistant Medical Officer to the Kent County Asylum, at Barming Heath. He joined the Navy, with a temporary commission, on November 27th, 1914.

The Association has also to deplore the death of Second Lieutenant Godfrey Wiglesworth, of the Royal Flying Corps, and to express condolence with his relatives. Lieutenant Wiglesworth was the only son of a former President of this Association, Dr. Wiglesworth, of Rainhill. He was killed at the front in a flying accident on July 8th, æt. 21. He was educated at Clifton and King's College, Cambridge.

Another death to be deplored was that of a son of Dr. MacBryan.

The members present would wish to approve of a vote of condolence being sent to the respective relatives of these gallant men who had given up their lives for their country.

The motion was carried by members rising in their places.

CONGRATULATIONS.

The PRESIDENT said that on the other side of the picture it was a pleasure to him to congratulate Captain (temporary) Swinnerton Blandy on his having been awarded the Military Cross. Dr. Blandy had served in a number of asylums, his (the speaker's) own among others, and at the time of joining he was Assistant Medical Officer at the County Asylum, Napsbury.

ELECTION OF OFFICERS, COUNCIL, AUDITORS, AND STANDING COMMITTEES.

The PRESIDENT said members had papers containing the nominations which had been made under Rule 67 (c), and the statement of attendances. The election of Officers, Council, and Auditors would be taken first. He nominated as scrutineers Dr. Dixon, Dr. Haynes, Dr. Tuke, and Dr. Langdon-Down.

During the taking of the ballot he asked members to proceed with the election of the Standing Committees. The names of these were printed on the agenda. If any member had any additions or alterations to suggest, he would please notify such now.

The nominations were agreed to.

The scrutineers reported that the President and Council and Auditors recommended were duly elected.

REPORTS.

Dr. R. H. STEEN (Acting General Secretary) read the report of the Council as follows:

ANNUAL REPORT OF THE COUNCIL FOR THE YEAR 1915.

The number of members—ordinary, honorary, and corresponding—as shown in the list of names published in the *Journal of Mental Science* for January, 1916, was 696, as compared with 731 in January 1915.

The following table shows the membership for the past decade:

Members.	1906.	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.	1915.
Ordinary . .	638	645	652	673	680	690	696	695	679	644
Honorary . .	32	30	29	32	33	34	35	34	34	34
Corresponding .	15	15	15	17	17	19	19	18	18	18
Total . .	685	690	696	722	730	743	750	747	731	696

The number of new members elected and registered during the year 1915 was 24, a decrease of 7 on the previous year. The names of 3 members which had been removed were restored. The number of members who resigned or whose names were removed by the Council under Bye-law 17, owing to arrears of subscription, was 46.

It is with regret that 16 deaths have to be recorded. Many among these were old and valued members of the Association.

The result of these changes is that there has been a decrease of 35 in the ordinary membership. This was expected for the following reasons: The majority of new members are drawn from the ranks of Assistant Medical Officers who join the Association on taking up mental work. During the past year men of this class have received commissions in the Military and Naval forces. Then, again, members who have joined the Army and have left England naturally feel uncertain about the future and have handed in their resignations. The death-rate, too, has been abnormally high; in fact, it constitutes a record of a melancholy nature in the annals of the Association within recent years.

Owing to the war the Annual Meeting was a purely business one, and was held in London. The February meeting, which is usually held at a provincial centre, was also held in London. The quarterly meetings in November and May took place as usual. None of these meetings had the usual social accompaniments.

With so many of the members absent on military service the supply of scientific papers was not so plentiful as in ordinary times. There have been forthcoming, however, papers of great practical importance which have produced interesting and valuable discussions.

Divisional meetings also were held with satisfactory attendances. The membership as reported to the Council in May was as follows:

South-Eastern	239
Northern and Midland	146
South-Western	104
Scottish	91
Irish	59

The Council feel that it is only right and proper to place on record the valuable services rendered by the members of the Association in connection with the war. From the returns compiled last January, 133, or 20 *per cent.*, of the ordinary members have joined His Majesty's forces, and three members, Lieuts. Edgar Faulks, Arthur Kellas, and Pierce Power have laid down their lives for their country. Ten asylums have been emptied of their patients and are in use as war hospitals, for which purpose they have been admirably converted by the efforts of those of our members who have been appointed their Commanding Officers. The valuable paper of our President read at the November meeting gave an insight into the difficulties contended with and successfully surmounted.

Those of our members who have not donned uniform have carried on their work with diminished professional assistance. Their anxieties have been increased by the large number of trained attendants who enlisted for the war. Matters were becoming so serious in this respect that it was thought advisable to summon a special meeting of Council in March, when strong representations were made to the Board of Control. The correspondence which ensued will be found in the Journals for April and July of this year.

The Parliamentary and Educational Committees have met regularly. Both these

Committees present reports. Special Committees have been formed to deal with matters requiring detailed consideration.

The Journal has continued to be much appreciated, and our thanks are due to Dr. Drapes, who, single handed, conducted the arduous work of editor for many months. In order to relieve him of a portion of the labour Drs. Devine and McRae were appointed Assistant Editors.

Gratitude is due to the Treasurer, Registrar, and Divisional and Committee Secretaries for time and trouble so willingly given, and also to the Acting Hon. General Secretary, who has most unselfishly and successfully taken up the duties of office to replace Dr. Collins.

The Association is greatly indebted to the President (Lieut.-Colonel D. G. Thomson), who has guided its destinies during a second term of office, and has presided over the meetings with dignity and courtesy.

The report was duly approved and adopted.

Dr. HAYES NEWINGTON (Hon. Treasurer) presented the Financial Statement, and spoke highly of the work of Dr. Steen as Secretary. He laid the statement of accounts and the bank-book on the table, and he invited inspection of them, and any questions which members might feel disposed to ask. He might wish to make one or two remarks later on the report of Auditors.

The report was duly received and adopted.

Dr. T. DRAPES read the report of the Editors of the Journal, and moved its adoption. This was agreed to.

REPORT OF THE EDITORS.

In their report to the Council at the Annual Meeting in July, 1915, the Editors felt themselves compelled to express their apprehension that there would probably be difficulty in obtaining literary material for the Journal during the ensuing year. This anticipation was, unfortunately, realised as regards the October issue of that year, which it was found necessary, greatly to the regret of the Editors, to restrict to merely a record of the business affairs of the Association. They are glad, however, that it has been possible to bring the first three numbers of the current year up to, or nearly up to, the normal proportions of the Journal previous to the war, for which they are indebted to those contributors who kindly placed papers at their disposal. In particular they feel under special obligation to Dr. Mercier, who was good enough to offer for publication in the Journal an important new work of his on "Causation," previous to its appearance in book-form.

The Editors cannot shut their eyes to the possibility of a similar contingency again occurring such as happened in October last. Still, from their experience during the present year up to this, they are not without hopes that sufficient material may be forthcoming for future issues. They also regret the lateness of the appearance of the Journal. This has been unavoidable, partly to the fact that some contributions came into their hands at an advanced stage of the quarter, but mainly to labour troubles, the printers having found it very difficult to obtain an adequate supply of hands to carry out the work. The total cost of the production of the Journal for the calendar year 1915, as shown in the Treasurer's statement, was £361 10s. 4d., as compared with £453 5s. 9d. for the previous year.* This reduction in expense is hardly a matter for congratulation, as it was chiefly caused by the shrinkage of material which occurred. The number of copies published during the year has been the same as heretofore, *vis.*, 1,125 of each issue.

The Editors wish to express their thanks to Dr. McRae and Dr. Devine for their valuable help as Assistant Editors in the compiling of the Journal.

JOHN R. LORD.
THOMAS DRAPES.

* The discrepancy between the amounts given for Journal expenses in 1914 in the Editors' Report and the Treasurer's Statement respectively is due to the fact that (as mentioned in both the Treasurer's and Auditors' Reports for 1914, pp. 507 and 509, Journal, 1915) in the Treasurer's Accounts the cost of the January number of the Journal in 1914 was, by a clerical error, included in the 1913 account. The expenditure in the latter year under this heading was therefore increased, while that of 1914 was decreased by that amount.

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UNIVERSITY OF CALIFORNIA

BALANCE-SHEET—31st December, 1915.

**DAVID BOWER } AUDITORS,
R. PERCY SMITH }**

(Signed) H. HAYES NEWINGTON, TREASURER,
(Signed) WOODINGTON & BOLT, F.C.A.

Dr. PERCY SMITH read the report of the Auditors, and moved that it be adopted.

REPORT OF THE AUDITORS.

We beg to report that we have examined the Treasurer's accounts and vouchers for payments made on behalf of the Association for the year ending December 31st, 1915, and find them perfectly correct. During the past year there has been a diminution both in the receipts and expenditure, but the balance of revenue account stands at £588, or £70 more than at the end of 1914. The amount written off for non-payment of subscriptions was £65 3s., or £4 4s. less than in 1914, but £199 19s. 6d. was still owing for unpaid subscriptions, which is too large an amount.

Many members of the Association are, however, abroad on military service. Some of them have been excused from paying current subscriptions at their own request, while still retaining their membership but not receiving the Journal at present. In spite of the value of the stocks held by the Association having been written down by no less an amount than £288 in the past four years, the value of the assets of the Association at the end of 1915 stands £412 higher than at the end of 1914.

We are glad to see that the Association possesses £1,000 of War Loan stock, and to learn that the Treasurer is empowered to apply any surplus cash to the purchase of Exchequer Bonds.

We must again express our high appreciation of the Treasurer's work for the Association, which owes him its best thanks for his constant care for its financial stability. He is also most fortunate in having very capable assistants, whose valuable help must not be forgotten by the Association.

DAVID BOWER,
R. PERCY SMITH, } *Auditors.*

Dr. HAYES NEWINGTON, referring to the remark in the Auditors' report concerning investments, said that this year the Association had taken up £300 of Exchequer Bonds, and another £200 had just been obtained, making, in all, £500 this year lent to the Government, in addition to what was loaned before, some £1,500 in the last three years.

The Report was received and adopted.

ANNUAL REPORT OF THE EDUCATIONAL COMMITTEE, 1915-16.

The Educational Committee, as in former years, has met on four occasions.

We regret to report that, during the year, there has been a decrease in the number of entrants both for the Preliminary and Final Nursing Examinations—in the case of the former a decrease of 170, and in the latter a decrease of 94.

It was decided that the Gaskell Prize Examination should be held as usual this year, but no candidates presented themselves.

The Professional Certificate Examination has been held, and there were two candidates; up to the present moment the result has not been published.

The Certificate which has hitherto been forwarded to successful candidates in the Preliminary Examination for the Nursing Certificate, which was remodelled last year, now takes the form of a Notice only and, in this way, any unfair use of the Preliminary Examination has been obviated.

An application has been made by the Inspector-General of Hospitals, South Australia, for recognition of certain regulations regarding the Nursing Certificate. This matter is to be dealt with by a Special Committee.

It has been recommended that a reprint be made of the Handbook of Nursing, but, up to the present, it has not been definitely settled whether a set of questions of a synoptic character should be included in the book or published separately.

A Special Committee has been appointed to deal with any questions which may affect this Association, which may arise in the formation of the proposed College of Nursing. Meetings of this Committee have been held, and the matter is still under consideration.

MAURICE CRAIG, *Chairman.*
J. G. PORTER PHILLIPS, *Secretary.*

GASKELL MEMORIAL PRIZE FUND.

STATEMENT BROUGHT ON FROM *Journal of Mental Science*, VOL. LVII, p. 729.

1911.	£	s.	d.	1911.	£	s.	d.
July 13th—				July 1st—			
Prize, Dr. Porter Phillips	45	0	0	Balance ...	83	17	11
Additional Prize (Dr. Moll) ...	15	0	0	Dividends ...	27	10	5
Examiners' Fees...	4	4	0				
Gold Medal ...	5	5	0				
Balance ...	41	19	4				
	£111	8	4		£111	8	4
1912.	£	s.	d.	1912.	£	s.	d.
December 31st—				January 1st—			
Prize, Dr. Boyd ...	45	0	0	Balance ...	41	19	4
Examiners' Fees	4	4	0	Dividends ...	55	0	10
Medals ...	6	11	6				
Balance ...	41	4	8				
	£97	0	2		£97	0	2
1913.	£	s.	d.	1913.	£	s.	d.
December 31st—				January 1st—			
Prize, Dr. Rees Thomas	45	0	0	Balance ...	41	4	8
Additional prize (Dr. McKinley Reid) ...	10	10	0	Dividends ...	55	0	10
Examiners' Fees	4	4	0				
Medal ...	5	5	0				
Balance ...	31	6	6				
	£96	5	6		£96	5	6
1914.	£	s.	d.	1914.	£	s.	d.
December 31st—				January 1st—			
Examiners' Fees	4	4	0	Balance ...	31	6	6
Balance ...	81	18	11	Dividends ...	54	16	5
	£86	2	11		£86	2	11
1915.	£	s.	d.	1915.	£	s.	d.
December 31st—				January 1st—			
Balance ...	133	14	1	Balance ...	81	18	11
	£133	14	1	Dividends ...	51	15	2
					£133	14	1
				1916.	£	s.	d.
				January 1st—			
				Balance ...	133	14	1
				July 27th—			
				Dividends ...	42	4	8

THE INVESTMENTS OF THE GASKELL MEMORIAL PRIZE FUND CONSIST OF:—

	£	s.	d.
New Zealand $3\frac{1}{2}$ per cent. Stock	1,380	11	4
New South Wales 3 per cent. Stock...	337	11	0
War Loan, $4\frac{1}{2}$ per cent.	200	0	0

H. HAYES NEWINGTON,
Treasurer.

September, 1916.

REPORT OF THE PARLIAMENTARY COMMITTEE, 1915-16.

Your Committee has held four meetings during the past year.

Its deliberations have been mostly concerned with the National Registration Act, Lord Derby's Recruiting Scheme, and the Military Service Act.

These measures have been discussed especially in regard to the retention of a sufficient staff of trained attendants in asylums, and action has been taken with the object of safeguarding the welfare of the insane in this respect.

National Insurance Certificates for patients in asylums have received attention, and Medical Superintendents have been circularised on the subject with a view to promoting uniformity of practice in giving them.

The proposed formation of a College of Nursing has been considered, as has also the question of employing asylum patients at war work.

H. WOLSELEY-LEWIS, *Chairman*.

R. H. COLE, *Secretary*.

The PRESIDENT said that with regard to items V and VI, the Educational and Parliamentary Committees' Reports, he did not know whether the Chairman of either of these Committees wished to add anything in supplement of what had been printed.

Dr. ALFRED MILLER (Registrar) said he would like to add one paragraph to the Report. Two papers were sent in in competition for the Divisional Prizes, and the first prize had been awarded to Dr. Hubert J. Norman, for his essay entitled "The Cerebral Associations of Raynaud's Disease." The second prize was won by Dr. David K. Henderson, for his contribution entitled "Katatonia as a Type of Mental Reaction." He had also to report that two candidates presented themselves for the Professional Certificate, and one of them had passed.

The Report was duly approved.

Dr. STEEN read the Report of the Library Committee, and moved that it be adopted. This was carried.

REPORT OF THE LIBRARY COMMITTEE.

The Library Committee report that during the past year the use made by members of the Library has not been so extensive as in previous years owing to the war. The Committee are, however, anxious to maintain the Library unimpaired in its sphere of usefulness, and they propose, at the appropriate time, to ask for the grant of £25 which the Association has made annually in recent years. The Committee are gratified at the gifts of books which have been made by authors and others. These gifts have been recorded in the Journal from time to time. The Committee wish to remind members that arrangements have been made with Messrs. Lewis to enable the Association to obtain the loan of books not in the Library. They also wish to state that a sympathetic reception will be given to any suggestions made by members as to the advisability of purchasing new books or as to any method by which the value of the Library may be increased.

HENRY RAYNER, *Chairman*.

R. H. STEEN, *Secretary*.

REPORT OF RESEARCH COMMITTEE.

The Research Committee begs to report to the Council that with respect to the Resolution passed by the Annual Meeting in 1915 as follows: "That the Association empowers the Council, should it think fit, to make grants in aid of original research on the recommendation of the Research Committee," the acting secretary of the Committee (Dr. David Orr) made inquiries regarding research in connection with hospitals for treating mental cases from the front, and found that the National Health Committee was in touch with them. Under these circumstances it seemed unnecessary to recommend any financial assistance from the funds of the Association. Moreover, as the President of the Association, Col. D. G. Thomson, R.A.M.C., and the General Secretary, Capt. M. A. Collins, R.A.M.C. (both of whom are members of the Research Committee) were aware of the resolution passed by the Association and its willingness to help, and might be considered representatives of the Association at meetings of the staffs of military mental

hospitals, there seemed no need at present for any special activity on the part of the Research Committee.

It has therefore only held one meeting since the Annual Meeting of 1915, and no change has been made in its constitution.

R. PERCY SMITH, *Chairman*.
DAVID ORR, *Secretary*.

The PRESIDENT said the Report of the Research Committee had also been circulated. Dr. Orr, the Secretary of that body, was unable to attend to-day, but the Chairman, Dr. Percy Smith, who was present, might like to say a word.

Dr. PERCY SMITH thought there was nothing material which he could add to the Report. It was mainly a negative report. The Association empowered the Research Committee to recommend grants-in-aid of original research, and then Dr. Orr made inquiries regarding research in connection with hospitals for mental cases from the front, and found that the National Health Committee was in touch with them, and were prepared to make grants. Therefore it seemed unnecessary to call upon the funds of the Association, which, in that way, was saving money. At present the Research Committee had done very little, but its report was before the members.

Dr. HUBERT NORMAN desired to ask the Chairman of the Committee in what way the Research Committee or the National Health Committee had got into touch with the men who were working at the front. He, the speaker, had himself been working for some time in one of the hospitals, and this was the first time he had heard of the matter. There were a large number of men working throughout the country: some may have heard of the Committee's intentions, but at the hospital he had been working there seemed to be no information on the subject.

Dr. PERCY SMITH, in reply, said he had not himself had any direct communication from the National Health Committee. Their Secretary reported to his Committee as stated, and perhaps the best way was to stir up the National Health Committee. He did not think anything could be added to this Report. He would ask Dr. Orr about the point raised by Dr. Norman.

The Report was duly approved.

Dr. STEEN, in reference to the item on the agenda providing for motions involving expenditure of funds, moved that £25 be voted to the Library to meet expenses for the coming year. This sum had been annually given by the Association for many years, and he was sure it would be well expended.

Dr. BOWER seconded, and, as part of the Library was housed in his premises, he wished to remind members that there were a great many back numbers of the Journal, which he would be very glad to dispose of at a moderate price.

The dates of future meetings, as suggested, were agreed to as follows:

Suggested by the President, *vis.*: Tuesday, November 21st, 1916; Thursday, February 15th, 1917; Tuesday, May 15th, 1917; July , 1917.

The Divisional Meetings are proposed as follows:

South-Eastern Division.—October 4th, 1916, at 11, Chandos Street, W.; and April , 1917.

South-Western Division.—October 27th, 1916; April 27th, 1917.

Northern and Midland Division.—October 26th, 1916, at Wharnccliffe War Hospital, Sheffield; and April 26th, 1917, at the County Asylum, Macclesfield.

Scottish Division.—November 17th, 1916; March 16th, 1917.

Irish Division.—November 2nd, 1916; April 5th, 1917; July 5th, 1917.

The following lady and gentlemen were elected as ordinary members:

BROWN, WILLIAM, M.A., M.B., B.Ch.Oxon., D.Sc.Lond., Reader in Psychology in the University of London (King's College), Capt., R.A.M.C., Alexandria (17th General Hospital), Maghull, and the Maudsley Hospital, Denmark Hill, S.E. (Permanent address: King's College, Strand, W.C.)

Proposed by Drs. R. H. Steen, Bernard Hart, and S. A. K. Wilson.

FORSYTH, CHARLES WESLEY, M.B.Lond., M.R.C.S., L.R.C.P., Assistant Medical Officer, Kesteven County Asylum, Sleaford, Lincs.

Proposed by Drs. J. Alfred Ewan, Arthur E. Patterson, and R. H. Steen.

KILGARRIFF, JOSEPH O'LOUGHLIN, B.A., M.B., B.Ch., B.A.O. Univ. Dub., Acting Assistant Medical Officer, Storthes Hall Asylum, Kirkburton, near Huddersfield.

Proposed by Drs. T. Stewart Adair, Richard Kelly, and R. H. Steen.

LEWIS, EDWARD, L.R.C.P., L.R.C.S. Edin., L.F.P.S. Glasg., Medical Officer to Glamorgan Mental Deficiency Committee, Glamorgan County Hall, Cardiff.

Proposed by Drs. J. McGregor, Edwin Goodall, and R. H. Steen.

OVERBECK-WRIGHT, ALEXANDER WILLIAM, M.B., Ch.B., M.P.C., D.P.H., Major I.M.S. Superintendent, Lunatic Asylum, Agra, U.P., India (at present on military duty); Lecturer on Mental Diseases, King George's College, Lucknow, and Agra Medical School, Agra. 12, Rubislaw Terrace, Aberdeen, Scotland; and Agra, U.P., India.

Proposed by Drs. William Reid, H. de M. Alexander, and R. B. Campbell.

POWER, PATRICK WILLIAM, L.R.C.P., L.R.C.S., Senior Assistant Medical Officer, County Asylum, Chester.

Proposed by Drs. G. Hamilton Grills, H. Dove Cormac, and T. Stewart Adair.

WILSON, MARGUERITE, M.B., Ch.B. Glasg., Assistant Medical Officer, The Retreat, York.

Proposed by Drs. Bedford Pierce, Henry J. Mackenzie, and R. H. Steen.

The PRESIDENT said it was now his pleasing duty to present the prizes and medals which had been awarded during the year. As the Registrar's report showed, there were no entries for the Gaskell Prize or for the Bronze Medal of the Association; but two admirable papers had been sent in for the Divisional Prize Competition. The first of these had been awarded to Captain Norman for his essay on "The Cerebral Relations of Raynaud's Disease." He had much pleasure in asking Dr. Norman to accept the prize. Dr. David Henderson, the winner of the second prize, was not present. His subject was "Katatonia as a Type of Mental Reaction."

THANKS TO THE PRESIDENT.

SIR GEORGE SAVAGE said he had the pleasure to propose a cordial vote of thanks to the President for the manner in which he had discharged the duties of his office during the year just ended. He, Sir George, was perhaps the oldest member present, and he had known Dr. Thomson for more years than he cared to realise. He knew that the President's work as Superintendent of an asylum had always been of the very highest description, and in the County of Norfolk he was respected, and, what was more, liked, an indication that his work had always proved satisfactory. Since the war broke out the President had shed his skin and taken on another, and certainly khaki seemed to suit him very well. He, Sir George, learned from Norfolk that Colonel Thomson's services were efficient and fully appreciated. It was a record in the annals of the Association for anyone to have occupied the presidential chair three years in succession. He had felt, and perhaps wisely, that it was not necessary to deliver a presidential address each year.

Dr. PERCY SMITH expressed the great pleasure he felt in being chosen to second the vote of thanks to Colonel Thomson. He believed all the members felt that Colonel Thomson had filled the office of President in a most efficient, and, at the same time, most ornamental, way. It seemed appropriate that during this year of war the President should be in khaki. All of them could not be, although they might be doing military or semi-military work. It had always been a great source of gratification that he introduced to the President the lady who had become his wife.

The vote was carried by acclamation.

THE PRESIDENT, in acknowledging the vote, said it was exceedingly kind of the proposer and seconder to place the motion before the meeting, and the members for having approved of it. He felt that he was only a figure-head, who was, as it were, "carrying on," and that it was not necessary to add to his considerable labours by delivering a presidential address, nor, therefore, to inflict such an address on those who were present. It was very charming of Dr. Percy Smith to have alluded to the personal incident which took place, now some thirty years ago, at Sir George Savage's house. He felt very grateful to the Association for the vote of thanks.

SIR GEORGE SAVAGE made the following introductory remarks before reading his paper on "Mental Disabilities for War Service."

Mr. President, Lady and Gentlemen,—This is a duty. The Secretary said there would be some difficulty in filling up the interest of the meeting, and asked me, therefore, if I would contribute something. Not having been occupied in any original research, and having only memories and pleasant impressions to work upon, the subject of the war naturally appeared largely before my vision. And then the question struck me, What was my definite relation to the war? And then I began to wonder whether there might not be some clause in the Defence of the Realm Act which might apply to me, as I found myself so frequently under the necessity of saying that men who had been called up were unfit for active service. These cases were so numerous that I was thankful to find that numbers of them were in different areas, so that my name did not occur very frequently before any one Tribunal. Therefore I have put together the results of my observations. There is nothing very original about these, but as the matter has been of interest to me, I thought it might interest others also.

The paper appears at page 653 of the present issue of the Journal.

Dr. PERCY SMITH said he had been very much interested in Sir George Savage's paper, because it had been his own experience to meet with a great many similar cases. As the author said, a great many patients who had consulted one long years before came now to know what was the right thing for them to do. In some, undoubtedly, there had been produced, as the result of their anxiety about the war, a feeling of worry, and a return of some of the symptoms which they had previously suffered from. In most cases of the kind, of course, one said enlistment was wrong, and that such persons ought to be exempted. And, as Sir George said, one gave so many certificates of this kind that there seemed a danger, almost, of becoming a suspected person, that one was oneself the subject of delusions. Medical officers of the Army who did not know the history of the persons concerned, and in many cases were not familiar with mental diseases as members of the Association knew them, did not recognise that a man who looked perfectly well, and had nothing wrong with heart or lungs, might yet be a person thoroughly unstable, and possessing a non-resistive mental and nervous organisation, and therefore one who, under the stress of military requirements, was liable to break down. He had picked out from his case-book a few illustrative cases. With regard to epilepsy one felt, as Sir George Savage said, there was no question as to any case of epilepsy, under any conditions or consideration, being allowed to enter the Army. Some had gone in, but had been made much worse thereby. A boy was at the present time attending his, the speaker's, out-patient department at St. Thomas' Hospital, who had suffered from epilepsy since he was fourteen, *i.e.*, four years ago. At first his attacks were fairly regular, about once a month. They were serious attacks, coming on in the night, and without warning the day previous. They were severe convulsive seizures, followed by intense drowsiness. Headache was experienced for a day or so afterwards, and during that time the patient was thrown out of all work. Under treatment the boy had been gradually improving. At first his attacks were reduced to one every two months or so, and subsequently the gaps of freedom became longer. He had not now had an attack since last September (over nine months). He had been able to undertake work, and was now engaged in what would be regarded as the dangerous position of an *employé* on the Electric Railway, though not in driving trains. He had warned the young man that the occupation was not without danger. This man looked very strong and healthy, and was well built and of a good colour, and as a consequence he was being constantly pestered by people asking him why he did not join the Army. He naturally shrank from telling all these busy people that he was subject to fits; and such people came to him to know what was the right thing for them to say and do. He, the speaker, had felt no hesitation in saying they ought not to join the Army, and he gave the young man just referred to a certificate to save him from being pestered by recruiting people. Another patient had been attending him for a long time with *petit mal*, and he also was totally unfit to join. Of cases who had had other attacks before, or who had a bad neurotic inheritance, he had seen many instances, and those of this character who had joined were afterwards quickly rejected. One such case was that of a youth whom he saw in March, 1915. His mother was insane, a

sister insane, and an uncle committed suicide. The young man was apparently healthy, and joined the New Army in September, 1914, and went into training. Almost at once, as the result of the strenuous work, the early hours, the hard digging of trenches, etc., in this country, he began to get run-down, and complained of something going wrong in his head. Then he got an attack of influenza, which precipitated the collapse. He had a renewal of the feelings in his head, became depressed, lost interest in things, lost confidence in himself, thought he was not doing right in having sick leave, and was on the verge of a bad breakdown. He, Dr. Smith, advised that he should be invalided out. Another case was that of a youth, æt. 21, who had a first attack of insanity in 1910, when his age was 16, and was placed in an asylum. He had a second attack in another asylum. Without his history being divulged he enlisted in October, 1914, joining the Public Schools Corps. By the following April, six months afterwards, he was confused and depressed and peculiar, his memory was bad, and he had to go into the Herbert Hospital. Thence he was discharged as medically unfit. Sir George referred to some of the cases which, though congenitally weak-minded, had, somehow, managed to get into the Army. He, the speaker, saw a youth, æt. 22, who had had infantile convulsions; he had always been slow at school. He had been intended, in pre-war days, for the Army, and, after two failures, entered Sandhurst with that in view. At Sandhurst there was a preliminary test as to whether the person was likely to make an efficient officer. This young man was declined a commission because he was adjudged unlikely to become an efficient officer. As he could not under these circumstances get a commission, he enlisted in September, 1914. When he, Dr. Smith, saw him he had been three times in the Herbert Hospital, because of an odd mental condition: the officers said they could make nothing of him. Then he got rather out of hand, assaulting people if they irritated him, and when he found his rifle inconveniently heavy, he threw it away. His memory was bad, he was depressed, and was frequently under arrest for minor offences. Of course, he was congenitally defective, and somewhat weak-minded, and unfit to be in the Army, and he was invalided out of it. Apart from the young cases, there were those who, at 45 years of age or thereabouts, had thought it their duty to join. One had seen a good many such people, who had been in civilian occupations of various kinds. One case was that of a man who had always been neurotic, and more or less an invalid, and had been following a quiet civilian occupation until 45 years of age. In September, 1914, he joined an anti-aircraft company, and was put on to searchlight duty. This man had never slept well, and was never able to sleep during the day. Therefore searchlight night duty was about the worst thing he could do. Immediately after starting the work he had insomnia, and acute neurasthenia developed, and he had what he described as a condition of blank despair: he had also a suicidal tendency. Of course he was the sort of man who ought never to have joined. Another case was that of a man, æt. 23, whose father was insane. He was always feeble, and of nervous constitution. He enlisted in the Public Schools Battalion, but was rejected on account of flat-foot. He was given a commission in the Army Service Corps in June, 1915. He only served on his commission one week, and then broke down. He made an attempt at suicide, prior to which he was nervously broken down. Unfortunately nobody in the R.A.M.C. at that place recognised that there was anything wrong with the man, and they refused him sick leave. This precipitated matters, and led up to the attempted suicide, by taking chlorodyne. He was in an acute delirious state, with hallucinations: he thought he had been in the trenches and had been wounded. He had just emerged from that condition when he, Dr. Percy Smith, saw him. He seemed to be in a weak-minded state, possibly only temporarily; at any rate, he was totally unfit to be in the Army. With regard to cases of officers whom he had seen in connection with a Hospital for Officers, he would mention one or two. One man whom he saw had, in 1908, an attack in which he supposed a bullet had got into the brain and was extracted afterwards. In 1913 he had depression again, and was in a hospital in France. He joined the Army in September, 1915, i.e., after recovering from this attack of depression. About a month after joining he again developed severe depression, and was alternately depressed and excited. Eventually he got through his attack. Another officer had been, before the war, clerk to a stockbroker. He had never been strong-minded, and had had twelve situations in as many years. He took a commission early in the

war, and then he, unfortunately, acquired syphilis. In August, 1915, he broke down, and was found to be peculiar in camp. He lost his power of concentration, and was dull and irrelevant in his remarks. He also was a case which, though he had never been abroad, nor in the war at all, had the delusion that he had been wounded through the heart by a bullet in France. After a considerable period he improved, and now seemed to be about to recover. But, of course, he was a person of very doubtful mental constitution, and he believed the man had always been somewhat weak-minded. Those were some of the cases which occurred to one as having been totally unfit to join the Army. With regard to homosexual cases, which Sir George Savage mentioned, he, the speaker, had seen some of those also, in which the youth in question had been subject to psychasthenia with a history of self-abuse, and who had joined, perhaps, to try and cure himself, but matters had been made worse since joining, and he had had to be invalided home and enter an asylum. With regard to hallucinatory cases, he would very much hesitate to let anybody go who he thought had hallucinations. He had seen one or two people who had come back, and who evidently had had hallucinations for a long time. One particular man he remembered, who got a commission out in France. He always imagined he saw his *fiancé* in the opposite trenches, and was incited to go for the Germans in consequence of that. When he came back to this country he was evidently mentally weak, and totally unfit for the Army. With regard to general paralytics he had seen many apart from officers who had broken down on account of the stress of war, which appeared to have precipitated the disease. There were other patients who, in the early stage of general paralysis, had been either thinking they ought to join—and it was then part of their condition of exaltation—or had had special “revelations” about Zeppelins or other methods of warfare, and were prepared to put their special knowledge or their schemes before the War Office, and hence were people who needed placing under care before they developed any more pronounced symptoms. With regard to shirkers, he had seen a number of people who were afraid that they were regarded as shirkers, some of them having been so definitely ill in other respects that they ought to be exempted, apart from their mental condition. But undoubtedly many had been strained by the feeling that they were not bearing their share in the war, although they were manifestly unfit.

Dr. G. SHUTTLEWORTH said that his own field of work was rather apart from lunacy, but in the period which had elapsed since the war started he had seen some young men who previously had been feeble-minded boys, and who came to him now because they had arrived at military age, and desired to be certified as unfit for military service. He had not always given such a certificate straight away. He had had some experience in these matters in connection with the South African War. At that time some of the ex-patients of the Royal Albert Asylum, with which he was formerly connected, acted very creditably in that campaign, and brought good characters with them. One died of disease in the Service. There were certain boys who, at some period of their career, had been reputed to be feeble-minded, and yet who made very good soldiers. The kind of patients he had been seeing at the present time were usually of a better social class, and their parents were more convinced than in the case of those of the poorer kind of boy, that their sons were not fit to become soldiers. There was a large number of boys who had been educated at the Special Schools of London and Birmingham—the two towns of which he happened to know the statistics—and had joined the forces, and, so far as was known at present, they served with fair credit. Towards the end of 1915 it was reported that seventy had joined of those who had been at the London Special Schools, and who afterwards came into the lists of the After-Care Committee: and he believed the corresponding number in respect of the Birmingham Special Schools was 100. With regard to institutional cases, at any rate, he thought there was something to be said in favour, first of all, of their fitness for soldiering, because they had been accustomed to a great deal of drill in the institution, and consequently they had acquired the habit of smartly carrying out orders. Secondly, the kind of discipline operative in the Army was likely to keep them out of whatever mischief they might have an inclination for, if they had sufficient nervous force to withstand the shock and strains incidental to the life, and with many that seemed to be the case. With regard to the class of patients whose parents were in a better social position, one had particularly to

use one's discretion, and not grant a certificate to everyone who said his or her boy would certainly break down if he were forced to be a soldier. When knowing the previous history, one was able to fairly gauge the amount of resistance possessed. For instance, one boy whose mother was very neurotic lived with him for three or four years, and at the end of the fourth year he had sufficiently improved to go to an ordinary board school, and he passed very creditably through it. He was now over 18 years of age, and was preparing for some university examination at the time he was included in the lists for military service. The medical officer, whom his father had seen before, said he was a fine, good-looking youth—and that was true—and that if he were passed for the Army they would make a man of him, and he, the speaker, was not sure that that would not be so. In that case, therefore, he contented himself by writing the history of the boy's youth, so far as he knew it, and asking the father to submit that document to the Medical Board before which the young man would be examined. He, the speaker, had not heard what was the result. With regard to the epileptic cases, he thought ever, one knew that in a youth who had been subject to epilepsy there was every prospect of a recurrence. He did not mean the ordinary convulsions associated with the teething period in early childhood, because many such cases grew out of their tendency to fits in later years. Real epilepsy, however, should constitute a definite bar to enlistment, or the acceptance of such a man as a candidate for the Army, though he believed there was a legend that the great Napoleon was occasionally subject to epileptic fits. He did not know whether that was a mere tradition, or was founded on fact: and, if true, it was not an argument in favour of excluding epileptics from the Army. He had had one or two cases of moral imbecility, an interesting but very difficult group. One case was that of a son of a Welsh Congregational minister, who had been brought up in, perhaps, the strictest sect. When he arrived at the age of puberty, he took to lying and thieving, and was for some time under his, Dr. Shuttleworth's, observation. He improved to some extent, and finally went home to his parents. When the war broke out, he enlisted "on his own." Three months later he, the speaker, had a letter from the young man's mother in which she said that unfortunately her son was getting into great trouble in Flanders, that he was frequently under arrest and punishment, because he did not keep his hands off the property of other men. In addition, he was not very obedient to his officers. He was getting so much punishment, for which he did not seem really responsible, that she would be glad if he could be got out of the Army. He, Dr. Shuttleworth, wrote to the Medical Officer attached to the particular company, giving what he knew about the case, and the result was that the boy was discharged, and he thought very justly too. In the case of another moral imbecile he had in mind it was doubtful if anything would be done, because the young man's course was not affected by punishment, and there were still signs of that tendency acting. It seemed cruel that such a boy should be in the Army, because he was sure to get into a lot of trouble and receive punishment which, perhaps, he really did not deserve, considering he sinned from infirmity rather than from intention.

Dr. SEYMOUR TUKE said he supposed it had fallen to the lot of most members of the Association to see similar cases to those spoken of in the paper, men whose fitness or otherwise to enter the Army had to be certified; and he was glad to find himself in agreement with Sir George Savage in everything that gentleman had said. He had had one or two cases which were on all fours with instances the author mentioned. He was particularly struck in the case of one strong-looking man who broke down when he came in for advice. He, Dr. Tuke, had recently had a good deal of trouble with the members of a particular family, who, collectively, had an extraordinary history: the father was a desperate drunkard, the mother was neurotic, the only sister was fairly well, but the first brother in the family was now in an asylum, the second brother—*i.e.*, the man he was now particularly referring to—was a very healthy-looking man, and closely resembled a case alluded to by Sir George Savage, so that on looking at him one would say there was nothing the matter with him; he not only looked very fit, but was very active-minded. He was engaged in rather responsible work not far away from the centre of London, and was much honoured and respected in his particular calling. He, Dr. Tuke, was first engaged in the case of another brother—not the one in the asylum—who got into desperate trouble in the South of England not long ago,

and had to be put into an asylum on account of indulging in homosexuality. The healthy-looking brother in London, whom he had just referred to, came to him, the speaker, recently about being supplied with an exemption certificate, and he had some talk with him about himself. He had suffered very much from insomnia, at times he had definitely "lost himself," particularly if he was worried, and he had recently been very anxious about his other brother, whom he had nursed and looked after for four or five weeks. He told the man he would do what he could for him, and he certainly thought that on his own and his family history he ought to be exempted: he believed that would be so, as it should be. He thought the cases in which there was a definite history of neurosis in the family should certainly be regarded as very doubtful ones. He had the interesting case of a man, æt. 26, who had been all through the African campaign with General Botha, and did fairly well there, though when he arrived home he was in a rather excitable state. He developed such an excellent readiness of tongue that he was put upon recruiting service, and he addressed a number of meetings. That went on fairly well for a time, but he became more excited, and at last he broke down with subacute mania, in which state he at present remained, though it had cleared up somewhat. There was an old history of tubercle in the case, otherwise he was a strong man. But he did not think it would be wise to allow him to do anything again. He thought one should stretch a point in the cases in which the family history was markedly neurotic.

The PRESIDENT remarked that before calling upon Sir George Savage to reply, he would like to say how indebted members were to him for bringing forward some of the fruits of his wide and ripe experience in these very difficult cases. At this stage of the meeting he did not want to enlarge on the subject, which was a large and interesting one, and one also upon which it was very difficult to lay down general principles. Those who were now in charge of war hospitals saw the results of admitting persons to the Army who had suffered mentally, or who at least were potential lunatics. It was very interesting to observe and watch the attitude of recruits before the Military Service Act came into operation a few months ago, and since. For instance, in the volunteer days, when the recruits voluntarily came forward, the suppression of the history of all kinds of epilepsy, and even actual insanity, was rampant; hence there were now in war hospitals patients who undoubtedly were insane on enlistment, and others who had been epileptics for years. Those facts were suppressed when dealing with the recruiting sergeant and the medical man, especially at the rushing times of six to twelve months ago, when voluntary recruiting was at its height. The trouble and expense of that were being reaped now. The attitude adopted since universal service was operative was very curious, for now many men, in their eagerness to be excused, not only did not disguise past mental trouble and epilepsy, but seemed even proud of it. He frequently got, recently, letters asking him for certificates stating the dates when particular persons were inmates in his asylum, with a view, of course, to securing exemption. The paper was entitled "Mental Disabilities for War Service," and the only remark he had to make upon that was, that when the Norfolk County Asylum at Thorpe was vacated, there was great difficulty in finding accommodation in the receiving asylums for the patients transferred, therefore in doubtful cases one stretched a point, and discharged a considerable number of men who, in ordinary times, would have been regarded as barely fit to be discharged; and he had been astonished to get letters, certainly from five of the male patients so discharged, from Egypt and from the trenches in France, stating that they were as happy as possible, and were doing very well, at the same time asking how their old friends at the asylum were. He did not know whether it would be lasting, or whether he heard only of those cases which had been a success. Certainly half of those he heard from seemed to be doing well, and had had little promotions. Yet those were cases which, normally, he would have kept in the Norfolk County Asylum.

Sir GEORGE SAVAGE, in reply, said he agreed with the President that it was important the other side of the matter should be heard. The very existence of the After-Care Association, of which he was the Treasurer, meant that men and women who had had attacks of insanity should be got well enough to return to their ordinary avocations. He did not doubt that joining the Army had done some people good; to many it seemed to have brought about moral good. The fact

that so many magistrates all over the country were now being presented with white gloves seemed to be evidence that at all events evils were being removed from civil life. But for those who were looking at the matter from the outside point of view one would run certain risks, but it depended upon whom the risks would fall.

PAPER.

Captain Colin McDowall, M.D., R.A.M.C.: "Functional Gastric Disturbance in the Soldier."

The PRESIDENT, in view of the fact that most of the members had left the meeting, asked whether the author would care to defer the reading of the paper until another meeting.

Captain MACDOWALL intimated that he was willing to fall in with the President's suggestion.

Concluding letter of the correspondence which has taken place between the Board of Control and the Secretary of the Association, and which was published in the last two numbers of the Journal.

July 31st, 1916.

SIR,

I am directed by the Council of the Medico-Psychological Association of Great Britain and Ireland to thank you for your letter of July 1st, and to say that they note with satisfaction that the Board have recognised the necessity of recommending full conditional exemption in a considerable number of cases in which only temporary exemption had been previously recommended, and of recommending additional temporary exemptions in the case of many other attendants.

I am further to add with regard to the comments made in your letter that the Council find nothing to modify in the arguments adduced or opinions expressed in their communication of May 17th.

I am, Sir,

Your obedient servant,

R. H. STEEN,

Acting Hon. General Secretary.

The Secretary,
Board of Control.

ABSTRACT OF THE FINAL REPORT OF THE ROYAL
COMMISSION ON VENEREAL DISEASES.

Prepared by T. C. MACKENZIE, M.D., F.R.C.P.Ed.,
District Asylum, Inverness.

To the King's Most Excellent Majesty.

MAY IT PLEASE YOUR MAJESTY,

WE, the Commission appointed to inquire into the prevalence of venereal diseases in the United Kingdom, their effects upon the health of the community, and the means by which those effects can be alleviated or prevented, it being understood that no return to the policy or provisions of the Contagious Diseases Acts of 1864, 1866 or 1869, is to be regarded as falling within the scope of the inquiry, humbly submit this our Second and Final Report for Your Majesty's most gracious consideration.

We have, since the commencement of our inquiry, held eighty-six meetings and examined eighty-five witnesses, to whom 22,296 questions were put.

Prevalence.

The materials available for estimating the prevalence of venereal diseases are, for various reasons, incomplete and unsatisfactory. In some countries partial

attempts to obtain a census of syphilitics have been made, but the results are vitiated by several sources of error, while generalisations from one country or one town to another cannot be trusted.

We have examined statistics obtained from the following official sources, with which we deal separately :

- | | |
|------------------------|-----------------------------|
| (a) Registrar-General. | (e) Local Government Board. |
| (b) Navy. | (f) Prison Commissioners. |
| (c) Army. | (g) Lunacy Commissioners. |
| (d) Police. | |

Distribution.

The tables given in Section II (a) show that the highest mortality recorded for syphilis occurs in England and Wales, where, in the year 1910, the crude annual death-rate per million from this cause is stated to be 46, as compared with 42 for Scotland, and only 22 for Ireland. Such consequential diseases as general paralysis, locomotor ataxy, and aneurysm closely follow syphilis in relative order of distribution, except that aneurysm stands highest in Scotland, and, together with general paralysis, is markedly low in Ireland.

Table I (Appendix I) brings out the fact that syphilis is essentially a town disease, and that the distribution of the three other diseases above referred to follows the same law. County boroughs return the highest mortality under each heading in the four divisions of the country dealt with, and are followed at some distance by the smaller towns, while the rural mortality is relatively low in every instance.

The comparative immunity of miners and agricultural labourers from aneurysm, although both classes are subjected to physical strain, corresponding closely with their freedom from syphilis, provides confirmation of the intimate connection between aneurysm and syphilis.

Except in the case of the navy and army, there are at present no means of arriving at an accurate estimate of the prevalence of venereal diseases. The tendency to concealment, which is a marked characteristic of those who have acquired these diseases, by militating alike against the acquisition of full knowledge of the extent of their incidence and against prompt treatment, render them peculiarly dangerous to public health. Moreover, it is only in comparatively recent years that their varied effects have begun to be recognised, while more in this direction still remains to be discovered.

Sir William Osler considers that "of the killing diseases syphilis comes third or fourth," and his evidence shows clearly that the number of deaths actually due to this cause which escape recognition must be very large. While we have been unable to arrive at any positive figures, the evidence we have received leads us to the conclusion that the number of persons who have been infected with syphilis, acquired or congenital, cannot fall below 10 *per cent.* of the whole population in the large cities, and the percentage affected with gonorrhœa must greatly exceed this proportion.

Effects.

The immediate effects of syphilis are inconsiderable as compared with the later developments.

Since acquired syphilis is the most frequent cause of arterial disease between 30 and 50 years of age, it follows that a widespread disease like syphilis must tend thereby to shorten life in many ways. It is a common saying that "a man is as old as his arteries," and we have received a mass of evidence pointing to the fact that arterial disease of syphilitic origin may directly or indirectly be the cause of many fatal diseases bearing another name than that which was primarily responsible for their occurrence.

Syphilitic disease of the arteries of the brain and spinal cord is frequently followed by clotting of the blood in these vessels (thrombosis), resulting in localised patches of softening which produce symptoms depending upon the function of the nervous structures involved, such as a stroke of paralysis, loss of speech, speech disorders, loss of memory, and mental enfeeblement.

The most serious late effects of syphilitic infection are observed in diseases of the brain and spinal cord, which are very important.

These morbid conditions give rise to the most varied symptoms and signs of nervous disease. Some of the more important paralytic conditions are hemiplegia (paralysis of one half of the body) where the brain is affected, paraplegia (paralysis of the lower extremities) when the spinal cord is affected, blindness, deafness, disorders or loss of speech, loss of memory, mental enfeeblement, epileptiform convulsions, in fact almost any symptom or sign arising from organic disease of the nervous system.

Tabes dorsalis (a wasting disease of the spinal cord) or locomotor ataxy, as it is generally termed on account of one of its most obvious symptoms, is a very frequent result of late syphilis.

Not infrequently blindness occurs (optic atrophy), and about 10 *per cent.* of cases are either associated with general paralysis or terminate in this rapidly fatal disease.

General paralysis of the insane is the most serious late result of syphilis. It is a fatal disease which attacks both sexes in the prime of life, and it is responsible for 14-15 *per cent.* of the male admissions to the asylums of London and other large cities annually, and for 2 to 3 *per cent.* of the female admissions.

Gonorrhœa is generally regarded by the public as a trifling ailment, though it has in reality serious and far-reaching consequences. Since the gravity of the disease is insufficiently realised it follows that early treatment is often neglected, and the opportunity of attacking the disease in the incipient stages, when it is much more amenable to treatment than later, is lost. The treatment of gonorrhœa if neglected becomes extremely difficult, and the disease may be contracted time after time, rendering the patient more and more liable to complications on each successive occasion.

It will be seen, therefore, that the consequences of gonorrhœa in males are grave and far-reaching, and that the disease is a source of the greatest danger to the community at large.

It is impossible to exaggerate the importance of gonorrhœa in women. In the earlier stage it inflicts on her a serious ailment; subsequently it may cause sterility, and in later years it frequently leads to conditions which may necessitate grave and difficult operations, to chronic invalidism, and sometimes to death.

Knowledge of these facts should, in our opinion, cause both the medical profession and the public to take a far more serious view of gonorrhœa than has hitherto been adopted.

Relation between Alcohol and Venereal Diseases.

Abundant evidence was given as to the intimate relation between alcohol and venereal diseases. Alcohol renders a man liable to yield to temptations which he might otherwise resist, and aggravates the disease by diminishing the resistance of the individual.

Alcoholism makes latent syphilis and gonorrhœa active. It makes the treatment of syphilis and gonorrhœa much more refractory. If alcohol is absolutely stopped during the treatment of syphilis and gonorrhœa, the result is much more satisfactory.

A person who suffers from syphilis of the nervous system has an invalid brain, and if he drinks he will certainly suffer seriously.

The facts point to the conclusion that decrease in the use of alcohol will be an important factor in diminishing the prevalence of venereal diseases.

Economic Effects of Venereal Diseases.

The grave economic losses to the State which venereal diseases involve constitute a powerful argument for the initiation of general measures of prevention and treatment at the earliest possible date.

These diseases take effect at every stage of life, and in the case of syphilis any part of the body may be temporarily or permanently affected. Both gonorrhœa and syphilis lead to an enormous annual loss of child-life.

The effects of syphilis in producing miscarriages, still-births, infantile mortality, and diseased offspring are strikingly illustrated in the records of family histories.

contained in Appendix XVI. At the earlier stages of life, therefore, the total loss to the State is certainly very large.

Congenital syphilis also frequently leads at an early age to blindness and deafness. The figures laid before us by Mr. Bishop Harman (Appendix XVII) show that more than half of all cases of blindness among children are the result of venereal diseases in the parents.

To the expenditure incurred in the treatment of these children must be added the additional cost of their education. The figures published by the London County Council indicate that the total cost of educating a child in the day schools for the blind is about seven times the cost of the education of the ordinary child.

Among adults the loss of working power from the earlier effects of the diseases is important. The naval statistics for the year 1912 show, for an average strength of 119,540 men, a total number of 269,210 days lost as a result of venereal diseases; in the army at home during the same year it appears from the returns that, with a strength of 107,582 men, there was an average of 593 constantly sick, equivalent to a loss of 216,445 days, from the same causes. If corresponding figures for the civil population could be obtained, they would be found to be extremely large, and it must be borne in mind that the civil population has not at present the advantage of easy access to the best modern treatment which has been provided for the navy and army. The evidence we have taken clearly establishes the fact that the neglect of venereal diseases, apart from the risk of later manifestations, has the effect of rendering the treatment more difficult, protracted, and expensive, thus entailing a large aggregate loss of working power.

The statistics of the London County Council asylums show that in the quinquennial period 1908-1912 rather more than 9 *per cent.* of the total admissions, or 16 *per cent.* of the male and 2.6 *per cent.* of the female admissions, are cases of general paralysis of the insane.

In England and Wales as a whole the average number for the three years 1910-1912 of cases of general paralysis under care in county and borough asylums was 2,307. Taking the average cost per patient as 15s. per week, the expenditure on cases of general paralysis alone would amount to nearly £90,000 annually.

If to these cases be added other forms of insanity resulting from syphilis and requiring asylum treatment, the annual cost to the asylum authorities in England and Wales cannot be less, and may be much more, than £150,000.

The Poor Law infirmaries also contain a number of persons suffering with incapacitating diseases of syphilitic origin such as locomotor ataxy, various forms of paralysis caused by disease of the brain and spinal cord, arterial disease, heart disease, and chronic skin and bone diseases. These disabling diseases are not necessarily fatal, and many cases live on in the infirmaries ten, twenty, or even thirty years.

Untreated, or inefficiently treated, syphilis is the main cause of the occurrence of these fatal and incapacitating diseases in asylums and Poor Law infirmaries; consequently early efficient treatment, by curing syphilis and preventing the spread of infection, cannot fail to have an important influence in lessening the great economic burden entailed by the maintenance of patients suffering with incapacitating and incurable disease in asylums and Poor Law infirmaries.

It is clear that if the various sources of loss above referred to could be rendered in terms of annual expenditure, the resulting total must be enormous. We cannot expect that the whole of this loss can be avoided; but we are satisfied that a large proportion of the total expenditure can in the future be saved, and that the savings would far more than counterbalance the cost of the measures we propose for the prevention and treatment of the disease.

Means of Treating or Preventing Disease.

It has been shown that success in treatment and in the prevention of the more serious later symptoms of syphilis depends upon prompt recognition of its presence. It follows that the most urgent requirement is to secure for every patient the freest and earliest possible access to medical assistance when there is suspicion of venereal disease. This implies *inter alia* that all temptation for the patient to have resort to an unqualified person shall be removed. This point we shall discuss in a later section of the Report.

The recent advances in knowledge with regard to venereal diseases, and the improvements which have followed in their treatment, have no doubt resulted in increased attention being paid to these diseases both by the medical profession and by the general public. It was, however, the general opinion of the witnesses who appeared before us that no adequate system of treatment would be organised unless responsibility for the measures to be adopted were undertaken by the State.

In this opinion we concur. We recognise that the medical practitioners of the country must form the first line of defence against these diseases, but the diseases are so widespread, and their consequences are, as we have shown, so serious—not only to the individual, but also to the race—that concerted action by a private authority is, in our view, essential. It appears to us that such action can best be secured through the medium of the larger local authorities who are already undertaking important work in relation to tuberculosis and other diseases.

We therefore recommend that the State should look to the Councils of the larger local authorities (*i.e.*, the Councils of Counties and County Boroughs or such areas as the Local Government Board may determine) to undertake definite schemes for the treatment of venereal diseases in their areas.

We have recommended that treatment of venereal disease should be available for the whole community, and that a person should, irrespective of his place of residence, be able to obtain treatment at any institution dealing with these diseases under a scheme formulated by a local authority. These two considerations, as well as the great national importance of the diseases, and the urgent need for action throughout the country, lead us to the conclusion that the greater part of the cost should be borne by the Exchequer. We appreciate, however, the desirability of throwing some part of the cost of schemes administered by local authorities on the authorities themselves, and we therefore recommend that 25 *per cent.* of the expenditure should be met from local rates. The remaining 75 *per cent.* should, we consider, be provided by Imperial grants.

Treatment of Venereal Diseases by Unqualified Persons.

The fear of disgrace and the consequent desire for concealment necessarily render the sufferer from venereal disease specially liable to attempt self-treatment, or to entrust his treatment to persons who are in no way qualified to deal with the disease. This appears to be true of all sections of the community, and we are informed that the upper classes resort to quacks as readily as the poor. The unqualified person, however, trades not only on the desire of his clients for secrecy, but also on their credulity and upon their ignorance of the seriousness of their disease. He promises quick cures, without publicity, without inconvenience, and at small cost.

We have no hesitation in stating that the effects of unqualified practice in regard to venereal diseases are disastrous, and that, in our opinion, the continued existence of unqualified practice constitutes one of the principal hindrances to the eradication of those diseases.

We strongly endorse the recommendations of the Select Committee on Patent Medicines that all advertisements of remedies for venereal diseases should be prohibited. The direct and indirect effects of these diseases upon the race are so grave, and the deception practised upon the public is so extensive, as, in our opinion, to justify repressive measures. We should have advocated legal provisions making the treatment of venereal disease by unqualified persons a penal offence, but we recognise the practical difficulties in securing the effective operation of such a law in present circumstances. The prohibition of advertisements is open to much less objection on this ground, and we believe that it would go far to remedy the great evils which have been emphasised by the evidence given before us.

Marriage and Communication of Disease.

The question whether or not the fact that one of the parties is, at the time of the marriage, suffering from disease "in a communicable form" should be ground for the other party obtaining a declaration of nullity was discussed before the Royal Commission in Divorce and Matrimonial Causes.

We have come to the conclusion that in substance the recommendation of the Royal Commission should be adopted by the Legislature. We think it most

important that it should be laid down by law that the presence of venereal disease in an infectious state constitutes an incapacity for marriage, whether or not the presence of disease is known. We regard this question as one affecting not only the married persons themselves, but also the public welfare in respect of the birth-rate and death-rate, and the effects of congenital disease upon the health and happiness of the offspring. The process should be made available for all persons, however poor.

Education of the Public.

We attach great importance to the educational aspect of the question with which we are called upon to deal. It is, in our opinion, absolutely necessary that the public should have fuller knowledge of the grave evils which exist among us, and of their effect upon the national life, present and future.

We have indicated the need for carefully-considered instruction in schools and colleges; we desire to point out that such instruction cannot relieve parents of their responsibility in this respect. We hope that the wider knowledge of danger which the publication of our Report may secure will have the effect of bringing home to parents the duty of warning and guidance which they should be able and willing to discharge.

We hope that the information which our Report contains, and the important evidence which we have received, will have an educational effect in the widest sense. We believe that they will go far to secure the enlightenment of the general public in regard to the grave dangers to the national health arising from the prevalence and spread of venereal diseases, and that this knowledge may lead to some change in the attitude of mind which still persists with respect to these diseases. That they are intimately connected with vicious habits is evident, but it is too often forgotten that large numbers of sufferers are absolutely innocent.

General Conclusions.

We have endeavoured to make clear the grave and far-reaching effects of venereal disease upon the individual and the race. The evidence we have taken proves conclusively that these effects cannot be too seriously regarded, and that they result in a heavy loss not only of actual but of potential population, of productive power, and by expenditure actually entailed.

The terms of our reference precluded consideration of the moral aspects of the questions with which we have dealt. We are, however, deeply sensible of the need and importance of the appeals to conscience and honour which are made by the religious bodies and by associations formed for this purpose. We believe that these appeals will gain force if the terrible effects of venereal disease upon innocent children and other persons who have no vicious tendencies are more fully realised. Our evidence tends to show that the communication of disease is frequently due to indulgence in intoxicants, and there is no doubt that the growth of temperance among the population would help to bring about an amelioration of the very serious conditions which our inquiry has revealed. We are also conscious of the fact that overcrowded and insanitary dwellings indirectly contribute to the spread of disease, and from improvements in this direction we should expect some diminution of its prevalence.

Our Report must issue at a time when all public activities are preoccupied in fulfilling the manifold needs of war. We are conscious of the disadvantage thus arising, and we feel that there is some risk that our recommendations may not receive the immediate attention which their national importance demands. We desire, therefore, to place on record our strong opinion that the conditions now existing and those which must follow on the conclusion of the war imperatively require that action should be taken without delay. There is no reason to believe that the percentage of infection in the naval and military forces is now greater than in normal times, but there can be no doubt that the total of infected persons has increased. The military authorities are doing their utmost to provide treatment, but the civil population requires corresponding measures, and all experience shows that after a war an excessive incidence of disease is certain to occur, even in districts previously free. In order to meet present and future conditions it is essential to make provision, and no time should be lost.

We realise the claims of economy at the present moment, but, for reasons we have given, we believe that all necessary expenditure will be recouped by the results which can be obtained.

Lastly, we wish to lay stress upon the needs of the future. The diminution of the best manhood of the nation, due to the losses of the war, must tell heavily upon the birth-rate—already declining—and upon the numbers of efficient workers. The reasons for combating, by every possible means, diseases which in normal times operate with disastrous effects alike upon the birth-rate and upon working efficiency are therefore far more urgent than ever before. Now and in the years to come the question of public health must be a matter of paramount national importance, and no short-sighted parsimony should be permitted to stand in the way of all means that science can suggest and organisation can supply for guarding the present and future generations, upon which the restoration of national prosperity must depend.

List of signatories to Report:

SYDENHAM OF COMBE.	J. SCOTT LIDGETT.
D. BRYNMOR JONES.	FREDERICK W. MOTT.
KENELM E. DIGBY.	MARY SCHARLIEB.
ALMERIC FITZROY.	J. ERNEST LANE.
MALCOLM MORRIS.	PHILIP SNOWDON.
JOHN COLLIE.	LOUISE CREIGHTON.
ARTHUR NEWSHOLME.	E. M. BURGWIN.
J. W. HORSLEY.	
	E. R. FORBER, <i>Secretary</i> .

SOUTH AFRICAN ASYLUMS.

Successful Candidates, Nursing Examination, May, 1916.

FINAL.

Pretoria.—E. Stolesburg, S. H. Perry, J. M. Coetzee, W. Commins, H. G. Terveen.

Valkenberg.—N. E. Westley, A. M. Searle, G. Norlin, E. M. A. Reyneke, I. M. Smuts.

Bloemfontein.—Annie Roe, Marguerita Redlinghuys, Johannes Marx, Petrus Jacobus Meyer.

Robben Island.—James Ellison Curry, William James Clarke, George Frederick Haupt, Bailey Jordaan, Thomas Monahan, Blanche Schutte.

Grahamstown.—B. Moller.

PRELIMINARY.

Fort Beaufort.—Charlotte Gilson, Clara Gertrude Vice.

Pietermaritzburg.—Virginia Julia Daniell, Agnes Fisher.

Valkenberg.—Jessie Asher, Minnie Lister, Margaret Amelia Fairweather, Bernadette Bennett, Anne Forsyth Murray Little, Anna Maria Elizabeth van der Merwe, Annie Catherine van Tonder, Lucy Jane Hall.

Pretoria.—Rose Edith Baldwin, Elizabeth Johanna Groenewald, Anne Susan Prinsloo, Margaretha Catharina de Klerk, Nellie Pryde Rennie, Frederick Christian Mienie, Eric Brown, George Fredrick Hendrick van Altena, Eleanor Wolley.

Bloemfontein.—Chrissie Johanna Parkin, Jan Hendrik Buys, David Hercules Victor, Lawrance Hartig.

Robben Island.—Albert Henry Saville, Denis Phelan.

Grahamstown.—J. A. Nell, H. J. Bessinger, N. Carroll, J. E. Mundell, B. C. Dutton, A. I. Boardman, K. C. Gray, H. J. Groenewald, E. A. Wright.

RETIREMENT OF DR. ROBERT ARMSTRONG-JONES.

THE resignation of Dr. Armstrong-Jones and his retirement from the position of Medical Superintendent of Claybury Asylum cannot be allowed to be passed without notice in these pages. For the past thirty-six years he has been devotedly engaged in asylum work. After some years of service at Colney Hatch he was

appointed Resident Physician at the Royal Earlswood Institution, and from there he was called to fill the highly important position of Medical Superintendent of the London County Asylum at Claybury at its opening, which post he held for a period of close on twenty-four years; a distinguished position which has involved no small expenditure of energy, physical and mental, in the fulfilment of the arduous and responsible duties, medical and administrative, connected with such a large institution. And it is not a matter of surprise that the health of any individual so circumstanced should eventually break down; an event which we greatly regret has occurred in the present instance.

Indications of the esteem in which Dr. Armstrong-Jones was held have been unmistakably shown on the occasion of his retirement. He was the recipient of an illuminated address from the Asylums Committee of the London County Council, which conveys in generous terms a well-deserved tribute to his services while in the asylum, along with an expression of sincere regret at the necessity for his retirement. He was also presented with a handsome tea and coffee service by the medical and lay staff of Claybury Asylum, and a number of the very numerous patients who are, or have been, under his care have expressed their regard for him by the gift of a silver inkstand.

Dr. Armstrong-Jones has had a long and intimate connection with the Medico-Psychological Association. He acted as General Secretary for nine years, 1897-1906, and in the latter year he was elected to the Presidential chair, being thus awarded the highest honour which it is in the power of the Association to bestow. He has contributed valuable and interesting papers to various periodicals, including our own Journal. While regretting his retirement from the asylum service, we hope that his health may in time be fully reinstated, and that he may yet be in a position to do useful work, and that his talents, his long experience, and his versatility will not be lost to psychiatry and social progress.

OBITUARY.

DR. J. ST. L. KIRWAN.

THE death of Dr. Kirwan, late Medical Superintendent of Ballinasloe Asylum, on August 8th, was as sudden as it was unexpected. He did not appear to have been suffering from ill-health in any way, although it was stated at a meeting of the Committee held subsequently to his death that for some time past his life was uninsurable. It was only in May last that he returned to the asylum after six months' service in connection with recruiting, having volunteered to assist with his motor car in that department in the autumn of last year. On the day of his death he was working in his office, and finding the heat there oppressive he went to the front door in search of coolness. When conversing there with his brother-in-law he complained of the sun being too hot, and withdrew into the house in the direction of his office. Very shortly afterwards he was heard to fall heavily, and when assistance arrived life was found to be extinct. His death was apparently due to heat apoplexy.

Dr. Kirwan had filled the office of Medical Superintendent of Ballinasloe Asylum for the preceding twelve years, having succeeded the late Dr. Fletcher after having served some years as second assistant there. He seems to have enjoyed the confidence of his Committee, the members of which, at a meeting held shortly after the sad event, spoke in high terms of his ability, honesty, and straightforwardness, and passed a resolution of sympathy with his bereaved relatives. He has left a widow and one child to mourn his loss. Dr. Kirwan had been a member of the Medico-Psychological Association since the year 1899.

ASYLUM ACCOMMODATION.

On August 21st Sir William Byles asked a question in the House as to the amount of overcrowding in asylums, whether any further reduction was proceeding or was in contemplation, and what was the present proportion of doctors to patients in the county asylums which remained available for the care and treatment of their original inmates. Mr. Brace said that the amount of overcrowding varied in different asylums, but intimated that on an average it might be

stated to be 17 *per cent.*—that was to say there were 117 patients in wards which were normally intended for 100. The number of beds by which the total accommodation of county and borough asylums in England and Wales had been reduced by the use of certain asylums as war hospitals was 15,750. No further reduction of accommodation was now proceeding or in contemplation. The present proportion of doctors to patients in the county and borough asylums was 1 to 390.

THE LIBRARY.

MEMBERS of the Association are reminded that the Library at 11, Chandos Street, W., is open daily for reading and for the purpose of borrowing books. Books may also be borrowed by post, provided that at the time of application threepence in stamps is forwarded to defray the cost of postage. Arrangements have been made with Messrs. Lewis to enable the Association to obtain books from the lending library belonging to that firm should any desired book not be in the Library. In addition, the Committee is willing to purchase copies of such books as will be of interest to members. Certain medical periodicals are circulated among such members as intimate their desire to be included in the list.

The Committee desire to acknowledge with thanks the donation by the author of *Organic to Human, Psychological, and Sociological*, by Henry Maudsley, M.D.

Applications for books should be addressed to the Resident Librarian, Medico-Psychological Association, 11, Chandos Street, Cavendish Square, W.

Other communications should be addressed to the undersigned at the City of London Mental Hospital, Dartford, Kent.

R. H. STEEN,

Hon. Secretary, Library Committee.

MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.

THE Acting General Secretary will be glad if Medical Superintendents and other members will advise him of any service news with regard to members. He wishes to keep a record of the names of members who have been wounded or killed, or to whom military honours have been given.

NOTICES BY THE REGISTRAR.

Dates of Nursing Examinations.

Preliminary	.	.	.	.	November 6th, 1916.
Final	.	.	.	.	November 13th, 1916.

NOTICES OF MEETINGS.

Quarterly Meetings: Tuesday, November 21st, 1916, London; Thursday, February 15th, 1917; Tuesday, May 15th, 1917.

The Divisional Meetings are proposed as follows:

South-Eastern Division.—October 4th, 1916, at 11, Chandos Street, W.; and April, 1917.

South-Western Division.—October 27th, 1916; April 27th, 1917.

Northern and Midland Division.—October 26th, 1916, at Wharnccliffe War Hospital, Sheffield; and April 26th, 1917, at the County Asylum, Macclesfield.

Scottish Division.—November 17th, 1916; March 16th, 1917.

Irish Division.—November 2nd, 1916; April 5th, 1917; July 5th, 1917.

APPOINTMENTS.

Starkey, William, M.B., B.Ch., B.A.O., R.U.I., Medical Superintendent of Plymouth Borough Asylum.

Mills, John, M.B., B.Ch., B.A.O., R.U.I., Medical Superintendent of Ballinasloe District Asylum, *vice* Dr. J. St. L. Kirwan, deceased.

English, Adeline, M.B., B.Ch., B.A.O., R.U.I., First Assistant Medical Officer of Ballinasloe Asylum.

NOTICE TO CONTRIBUTORS.

N.B.—The Editors will be glad to receive contributions of interest, clinical records, etc., from any members who can find time to write (whether these have been read at meetings or not) for publication in the Journal. They will also feel obliged if contributors will send in their papers at as early a date in each quarter as possible.

Writers are requested kindly to bear in mind that, according to LX(a) of the Articles of Association, "all papers read at the Annual, General, or Divisional Meetings of the Association shall be the property of the Association, unless the author shall have previously obtained the written consent of the Editors to the contrary."

Papers read at Association Meetings should, therefore, not be published in other Journals without such sanction having been previously granted.

INDEX TO VOL. LXII.

PART I.—GENERAL INDEX.

- Aberdeen Asylum report, 436
Albumen content of the spinal fluid in its relation to disease syndromes, 428
Alcoholism, chronic, degeneration of the cerebral commissures and the hemispheres in, 218
Amentia, compluetic reaction in, 657
Annual meeting, 1916, 805
Antipathy, results of a questionnaire on, 611
Aphemia due to tumour of the right cerebral hemisphere, 803
Appointments, 239, 468, 828
Armstrong-Jones, Dr. Robert, retirement of, 826
Asylum accommodation, 827
 " County, conversion of a, into a war hospital, 1915, 109
 " reports, 429, 627
 " Workers' Association, annual meeting, 639
Asylums, list of, converted into military hospitals, 123, 174
 " roll of honour, 467
Auditors, report of, 810

Balance sheet, 809
Ballinasloe asylum, 467
Ballinasloe Asylum inquiry, 651
Barming Heath Asylum report, 432
Barnwood Hospital report, 436
Bergson's theory of the dualism of intelligence and instinct, 789
Biological point of view in psychology and psychiatry, 777
 " significance of delusions, 135
Binet-Simon method and the intelligence of adult prisoners, 214
Board of Control and the Council of the M.P. Association *re* the shortage of experienced male staffs in asylums, 455, 636, 820
 " " first annual report for the year 1914, 599

Cairo Hospital for the Insane, Abassia, twenty-first annual report, 439
Catatonia as a type of mental reaction, 556
Causation, with a chapter on Belief, 1, 241
Cenæsthesia, movement, and the mind, 784
Cerebral associations of Raynaud's disease, 730
 " cysts of cysticercus cellulosa (larvæ of *tænia solium*), death due to, in case of status epilepticus, 180
Characters, diseases of, 804
Children between two and four years, delay and precocity in the development of, 783
Cholesterol content of serum in mental diseases, 168
Clinical neurology and psychiatry, 213, 428, 616, 792
 " notes and cases, 179, 411, 595

- Colony treatment of epileptics, report of, 151
 Compluetic reaction (Wassermann), in amentia, 657
 Correspondence, 236, 465, 651
 Council, report of, 806
 Criminal trials, unfitness to plead in, 763]
- Daughter's destiny, father's significance for the, 210
 Delusions, biological significance of, 135
 Dementia, arteriosclerotic, 612
 " *præcox*, characteristic attitude assumed by many cases of, 179
 " " crises in, 213
 " " manic-depressive insanity and, 622
 " " medico-legal aspect of, 787
 " " observations on, 209
 " " paraphrenia and paranoia, 215
 Diet as a factor in the causation of mental disease, 505
 Dorsetshire Asylum report, 429
 Douglas, Dr. A. R., obituary, 225
 Dreams, practical application of, 426
- East Sussex County Asylum report, 435
 Edinburgh, Morningside Asylum report, 437
 Editors, report of the, 808
 Educational Committee, report of, 810
 Election of members, 225, 446, 813
 Emotion of love, formation of the erotic complex in the, 205
 Epilepsia tarda, or senile epilepsy, and arteriosclerotic dementia, study of, 612
 Epilepsy, cerebral, pathogeny of essential, and, 618
 Epileptic deterioration, clinical study of, 792
 Epileptics, report of, following colony treatment, 151
 Epitome of current literature, 203, 424, 609, 777
 Erythromelalgia and Raynaud's disease, 748
 Essex County Asylum report, 430
 Examination for nursing certificate: list of successful candidates, 233, 645
 " for nursing certificates: successful candidates (South Africa), 826
 " " questions, May, 1916, 644
 " nursing, November, 1915, resolutions, *re*, 235
- Faulks, Lieut. Edgar, obituary, 225, 236
 Federated Malay States, general paralysis of the insane in the, 411
 Feeble-minded, National Association for the, report for 1915, 421
 Female nurses, employment of, in male wards of mental hospitals in Scotland,
 351, 416, 446
 Fox, Dr., obituary, 445
- Gaskell Memorial Prize Fund, balance sheet, 1911-1915, 811
 Gateshead Borough Asylum report, 431
 Glasgow, Gartnavel Asylum report, 438
 Govan Asylum report, 439
- Hallucinations, diagnostic value of, 427
 " *role* of, in the psychoses, 796
 Heredity, Zola's study of, 530
 Hine, G. T., obituary, 635, 649
 History, study of, from a psycho-pathological point of view, 609
 Homosexuality, newer work upon, 209
 Honours, 806
 Hospital "preparedness" in England, 643
 Human Nature, dualism of, and its social conditions, 626
 Hysterical phenomena, mechanism of, 378
- Ideas, doctrine of association of, opposition to the, 780

- Inebriety, modern treatment of, 219
Infantile sexuality and the neuroses, 206
Infantilism, psycho-sexual, 207
Insane, male, female nursing of, 351, 416
Insanity, pathology of, 218
 " treatment of, 219, 624
Inverness Asylum report, 439
Ireland, sixty-fourth annual report of the Inspectors of Lunatics for the year ending December 31st, 1914, 190
Irish Division meeting, 231, 460
- Kellas, Capt. Arthur, death of, 225
Kent, Barming Heath Asylum, report, 432
Khanka Asylum, fourth annual report, 439
Kirwan, D. J. St. L., obituary, 827
- Library Committee report, 812
 " of the Association, 467, 828
Love, emotion of, formation of the erotic complex in the, 205
- Macfarlane, Dr. W. H., obituary, 465
Manic depressive insanity and dementia præcox, 622
Medical Psychological Association : special council to receive report re the shortage of experienced male staffs in asylums, 455
Medico-legal aspect of dementia præcox, 787
Medico-Psychological Association meetings, 224, 445, 634
 " " seventy-fifth annual meeting, 805
Meetings, dates of, 238, 468, 813
Members and officials of the M.P. Association, i-xxxii
Mental After-Care Association : report of the Council, 461
Mental and Nervous diseases, reaction time in, 698
 " defectives, tests to throw light on capacities of, 214
 " Deficiency Act, occasional notes on, 469
 " deficiency, cases of high grade, 485
 " deficiency, prostitution and, 222
 " disabilities for war service, 653
 " disease, diet as a factor in the causation of, 505
 " diseases, cholesterol content of serum in, 168
 " " new classification of, 789
 " disorders in general hospital, treatment of, 624
 " " use of nucleinate of soda in, 403
 " hospitals in Scotland, employment of female nurses in male wards, 351, 416
 " processes, physiological basis of, 424
 " reaction, catatonia as a type of, 556
Metropolitan Asylum Board report, 433
Military hospitals, use of asylums as, scheme of the Board of Control, 109, 116
 " " asylums converted into, 123
 " " use of asylums as, 174
Montrose Asylum report, 439
Moody, Sir James, obituary, 225
Moon, Surgeon G. B., obituary, 806
Morrison, Dr., obituary, 445, 463
- Negroes, psychoses among, a comparative study, 223
Nervous and mental diseases, reaction time in, 698
 " debility, 620
 " system, integrative functions of the, 203
Neurasthenic element in disease, 618
Neuroses, infantile sexuality and the, 206
Nomadism, or the wandering impulse, with special reference to heredity, 615
Northern and Midland Division meetings, 229, 639
Notes and news, 224, 445, 634, 805

- Notices by the Registrar, 238, 468, 828
 Notices of meetings, 238, 468, 813
 Nucleinate of soda, its use in acute mental disorders, 403

 Obituary.—Douglas, Dr. A. R., 225
 Faulks, Lieut. E., 225, 236
 Fox, Dr., 445
 Hine, G. T., 635, 649
 Kellas, Capt. A., 225
 Kirwan, Dr. J. St. L., 827
 Macfarlane, Dr. W. H., 465
 Moody, Sir James, 225
 Moon, Surg. G. B., 806
 Morrison, Dr., 445, 463
 O'Neill, Dr. E. D., 236, 445
 Wiglesworth, 2nd Lieut. G., 806
 Wisely, Dr. F., 225
 Occasional notes, 182, 416
 Occultism—a review, 200
 Officers and Council, election of, 806
 O'Neill, Dr. E. D., obituary, 236, 445

 Paralysis, general, of the insane, in the Federated Malay States, 411
 Paraphrenia and paranoia, 215
 Paresis, general, mental symptoms found in, 798
 Parliamentary Committee, report, 812
 Pathological findings in the sympathetic nervous system in the psychoses, 787
 Pathology of insanity, 218
 Personality in its relation to the hygiene of mind, 425
 Phipps psychiatric clinic, review of the first year's work, 216
 Physiological education, Séguin and, 720
 " psychology, 203, 424
 Pragmatism and the problem of the idea, 775
 President's address : discussion on, asylum converted into war hospital, 225
 Prisoners, adult, Binet-Simon method and the intelligence of, 214
 Prostitution and mental deficiency, 222
 Pseudologia phantastica, or pathological lying, 595
 Psychiatric dispensary, the rôle of the : review of the Phipps clinic, 216
 Psychiatrists, our work as, and its opportunities : an address, 578
 Psychiatry, clinical, 428
 " " neurology and, 616
 Psychical research, religious problem in, 779
 Psychoanalysis, criticism of, 204
 Psychoanalysis, theory of, 607
 Psychological phenomena, do they exist in the vegetable world, 610
 Psychology and Psychopathology, 206, 425, 609, 777
 " experimental, and psycho-pathology, 212
 " physiological, 203, 424
 Psycho-pathological point of view, study of history from a, 609
 Psychopathology, psychology and, 206, 425
 Psycho-sexual infantilism, 207
 Psychoses among negroes ; a comparative study, 223
 " infective exhaustive, symptoms in the, 795
 " rôle of hallucinations in the, 796

 Rabbit's brain, experimental toxic lesions in the, and their bearing on the genesis
 of acquired idiocy in man, 635
 Raynaud's disease, cerebral associations of, 730
 " " erythromelalgia and, 748
 Reaction time in nervous and mental diseases, 698
 Religious problem of psychical research, 779

- Report, 21st annual report of the Government Hospital for the Insane at Abassia, Cairo, and the fourth annual report on the asylum at Khanka, 439
- „ of auditors, 810
 - „ of council, 806
 - „ of editors, 808
 - „ of Educational Committee, 810
 - „ final, of the Royal Commission on Venereal Diseases, 820
 - „ of Parliamentary Committee, 812
 - „ of Library Committee, 812
 - „ of Research Committee, 812
- Reports: London County Council, 1914, 627
- „ of asylums, 429
- Research Committee, report, 812
- Reviews, 184, 421, 599, 775
- Royal Medical Benevolent Fund, 651
- Schoolchildren, relative degrees of dulness and backwardness in, and their causation, 394
- Scotland, first annual report of the Board of Control for, 184
- Scottish Division meetings, 230, 460
- “Secretes of Alexis,” a sixteenth century Psychiater, 363
- Séguin and physiological education, 720
- Serum, the cholesterol content of the, in mental diseases, 168
- Sex complex, 605
- Shame, 756
- Sociology, 222, 626
- South-Eastern Division meetings, 230, 638
- South-Western Division meetings, 230, 638
- Staffordshire County Asylum report, 434
- Statistical intermission, a, 182
- “Status epilepticus,” case of, and death due to cerebral cysts of *cysticercus cellulosæ* (larvæ of *Tænia solium*), 180
- Tænia solium*, larvæ of, case of “status epilepticus” due to, 180
- Temperament, inheritance of, 616
- Tics, genesis and meaning of, 427
- Tumour of the centrum ovale of the right pre-frontal lobe, 799
- „ of the corpus callosum, diagnosis of, 803
- Vegetable world? do psychological phenomena exist in the, 610
- Venereal diseases, Royal Commission on, abstract of final report, 820
- War hospital, conversion of a county asylum into a, 109
- War service, mental disabilities for, 653
- Wassermann reaction in amentia, 657
- Wigelsworth, 2nd Lieut. Godfrey, obituary, 806
- Wisely, Dr. Francis, obituary, 225
- York, the Retreat, report, 436
- Zola's study of heredity, 530

PART II.—ORIGINAL ARTICLES.

- Adams, J. Barfield, Zola's study of heredity, 530
- Brush, Dr. Edward N., Presidential address: “Our work as Psychiatrists, and its opportunities,” 578
- Burpitt, Dr. H. R., relative degrees of dulness and backwardness in school children and their causation, 394

- Cruikshank, Dr. J., and Tisdall, D. C. J., cholesterol content of serum in mental diseases, 168
- Devine, Henry, biological significance of delusions, 135
- Donkin, Sir Bryan, occasional notes on the Mental Deficiency Act, 469
- Dunn, Dr. Williamina Shaw, pseudologia phantastica of pathological lying, in a case of hysteria with moral defect, 595
- Griffiths, Dr. A. Hume, report of epileptics following colony treatment, communicated by Sir George Savage, 151
- Henderson, Dr. David K., catatonia as a type of mental reaction, 556
- McDowall, Dr. Colin, nucleinate of soda: its use in acute mental disorders, 403
- Mercier, Dr. Charles A., causation, with a chapter on belief, 1, 241
- " " diet as a factor in the causation of mental disease, 505
- Norman, Dr. Hubert J., cerebral associations of Raynaud's disease, 730
- " " "The Secrets of Alexis," a sixteenth century Psychiatrist
363
- Peachell, Dr. G. E., a case of "Status Epilepticus" and death due to cerebral cysts of *cysticercus cellulosæ* (larvæ of *Tænia solium*), 180
- Rae, Dr. James, on shame, 756
- Redfield, Casper L., extracts from an address April 12th, 1916, before the Zoological Department of the University of Chicago, 573
- Robertson, Dr. George M., employment of female nurses in the male wards of mental hospitals in Scotland, 351
- Robertson, Dr. Jane J., cases of high grade mental deficiency, 485.
- Salmon, Albert, mechanism of hysterical phenomena (trans. by T. Drapes), 378
- Samuel, William F., general paralysis of the insane in Federated Malay States, 411
- Savage, Sir George, M.D., mental disabilities for war service, 653
- Scripture, Dr. E. W., reaction time in nervous and mental disease, 698
- Shuttleworth, Dr. George E., Séguin and physiological education, 720
- Smith, D. M. Hamblin, unfitness to plead in criminal trials, 763
- Steen, Dr. R. H., a characteristic attitude assumed by many cases of dementia præcox, 179
- Stephens, Harold Freize, compluetic reaction (Wassermann) in amentia an original study of 100 cases, with discussion on, 657
- Thomson, Lieut.-Col. D. G., M.D., descriptive record of the conversion of a county asylum into a war hospital for sick and wounded soldiers in 1915, 109
- Tisdall, Dr. C. J., see Cruikshank, Dr. J.
- Vincent, Lieut.-Col. Wm., M.D., use of asylums as military hospitals, 174

PART III.—REVIEWS.

- Bell, Dr. W. Blair, *The Sex Complex*, 1916, 605
 Driscoll, Rev. John T., *Pragmatism and the Problem of the Idea*, 775
 First Annual Report of the Board of Control for the year 1914, 599
 First Annual Report of the General Board of Control for Scotland, 184
 Healy, Dr. William, *The Individual Delinquent*, 1915, 194
 Jung, Dr. C. G., *Collected papers on Analytical Psychology*, translated and edited by Dr. Constance E. Long, 1916, 776
 „ C. G., *Theory of Psychoanalysis*, 1915, 607
 McDougall, William, F.R.S., *An Introduction to Social Psychology*, ninth edition, 1915, 602
 National Association for the Feeble-minded: *Annual Conference Report*, 1915, 421
 Occultism—a Review, 200
 Ogden, Robert Morris, *Introduction to General Psychology*, 1914, 199
 Ricklin, Dr. Franz, *Wishfulfilment and Symbolism in Fairy Tales* (translated by Dr. W. A. White), 1915, 422
 Sixty-fourth Report of the Inspectors of Lunatics (Ireland) for the year ending December 31st, 1914, 190
 Stoddart, Dr. W. H. B., *The New Psychiatry*, 1915, 197
 Valentine, C. W., *Introduction to Experimental Psychology*, 200

PART IV.—AUTHORS REFERRED TO IN THE EPITOME.

- | | | |
|------------------------------|--------------------------|---------------------------|
| Abbott, E. Stanley, 777 | Durkheim, 626 | Myerson, A., 428, 787 |
| Acqua, C., 610 | Fanciulli, 611 | Nazari, 218 |
| Austregesilo, 620 | Fiessinger, Dr. Ch., 804 | Neff, Irwin H., 219 |
| Bignami, 218 | Giannuli, Dr. F., 799 | Potts, W. A., 214 |
| Bolten, G. C., 618 | Green, E. M., 223 | Proal, L., 609 |
| Boriac, E., 779 | Halberstadt, 213 | Ruby, G. H., 215 |
| Brown, Sanger, 795 | Harrison, Dr. F. M., 796 | Sadger, J., 210 |
| Buscaino, 803 | Juliusburger, O., 207 | Salvatore, Professor, 787 |
| Burr, Dr. C. W., 204 | Kempf, Dr. E. J., 203 | Smith H. Hamblin, 214 |
| Campbell, Dr. C. Macfie, 216 | Knapp, Dr. P. C., 624 | Solomon, Meyer, 427 |
| Clark, Pierce, 209 | Kostyleff, 205 | Southard, E. E., 798 |
| Clarke, Walter, 222 | Laumonier, Dr. J., 206 | Stearns, A. W., 427 |
| Collin, Dr. André, 783 | Legrand, 213 | Treadway, W. L., 209 |
| Craig, James, 618 | Lombroso, Dr. Gina, 789 | Warnoch, Dr. John, 441. |
| Davenport, C. B., 615, 616 | MacCurdy, 792 | Wells, F. L., 425 |
| Dearborn, George Van | Marshall, Dr. R. M., 622 | Ziveri, Alberto, 612 |
| Ness, 784 | Morselli, E., 212 | |
| Delage, Yves, 424, 426 | | |
| Dercum, D. F. X., 204 | | |
| De Sarlo, 611 | | |
| Dugas, L., 780 | | |

ILLUSTRATIONS.

- Drawings and tables to illustrate Dr. Scripture's paper, 701, 703, 705-719
 Drawings to illustrate Dr. Shuttleworth's paper, 726-9
 Genealogical tree to illustrate Mr. J. Barfield Adams's paper, 534
 Photograph of G. T. Hine, F.R.I.B.A., 469
 Photograph to illustrate Dr. Robertson's paper, 352
 Photographs " Dr. Steen's paper, 178
 Tables to illustrate Dr. Cruikshank's and Dr. Tisdall's paper, 172, 173
 Tables " Dr. A. Hume Griffith's paper, 151-67
 Tables " Mr. H. F. Stephens's paper, 670-4, 676, 677, 682, 683, 686,
 689, 694

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